01-01-20

Connor-Davidson Resilience Scale (CD-RISC) © Manual

Further information about the scale can be obtained from the author at mail@cd-risc.com and at the www.cd-risc.com website.

Cite as: Davidson JRT. Connor-Davidson Resilience Scale (CD-RISC) Manual. Unpublished. 01-01-2020, accessible at www.cd-risc.com.

Contents

Introduction, Authorized and Unauthorized Versions of the CD-RISC 3

Directions for Scale Administration, Scoring and Interpretation of Score 6

Reading Ease and Reading Grade Level 7

Demographic Features of the CD-RISC 8

Mean Scores of CD-RISC in Different Populations 10

- Table 1a. Mean (SD) CD-RISC 25-Item Scores in General Population Samples 12
- Table 1b. Mean (SD) CD-RISC 10-Item Scores in General Population Samples 12
- Table 1c Mean (SD) CD-RISC 2-Item Scores in General Population Samples 13
- Table 2a. Mean (SD) CD-RISC 25-Item Scores in Students and Young Adults 16
- Table 2b. Mean (SD) CD-RISC 10-Item Scores in Students and Young Adults 18
- Table 2c. Mean (SD) CD-RISC 2-Item Scores in Students and Young Adults 18
- Table 3a. Mean (SD) CD-RISC 25-Item Scores in Post-Traumatic Stress Disorder & Subjects Exposed to Severe Trauma 19
- Table 3b. Mean (SD) CD-RISC 10-Item Scores in Post-Traumatic Stress Disorder & Subjects Exposed to Severe Trauma 21
- Table 3c. Mean (SD) CD-RISC 2-Item Scores in Post-Traumatic Stress Disorder & Subjects Exposed to Severe Trauma 21
- Table 4. Mean (SD) CD-RISC 25-Item Scores in Subjects with Depression, Suicide Attempts or Suicidality 22
- Table 5a. Mean (SD) CD-RISC 25-Item Scores in Groups with Other Psychiatric Disorders 24
- Table 5b. Mean (SD) CD-RISC 10-Item Scores in Groups with Other Psychiatric Disorders 26
- Table 5c. Mean (SD) CD-RISC 2 Item Scores in Groups with Other Psychiatric Disorders 26

Table 6a. Mean (SD) CD-RISC 25-Item Scores in Groups with Medical Problems 28
Table 6b. Mean (SD) CD-RISC 10-Item Scores in Groups with Medical Problems 30
Table 6c. Mean (SD) CD-RISC 2-Item Scores in Groups with Medical Problems 32
Table 7a. Mean (SD) CD-RISC 25-Item Scores in Non-Treatment Seeking Trauma Survivors 35
Table 7b. Mean (SD) CD-RISC 10-Item Scores in Non-treatment Seeking Trauma Survivors 36
Table 7c. Mean (SD) CD-RISC 2-Item Scores in Non-treatment Seeking Trauma Survivors 36
Table 8a. Mean (SD) CD-RISC 25-Item Scores in Other Groups, Those Under Stress and/or Mainly Healthy Subjects 38
Table 8b. Mean (SD) CD-RISC 10-Item Scores in Other Groups, Those Under Stress and/or Mainly Healthy Subjects 40
Table 8c. Mean (SD) CD-RISC 2-Item Scores in Other Groups, Those Under Stress and/or Mainly Healthy Subjects 41
Table 9. Mean (SD) CD-RISC 10-Item Summary Scores 44
Table 10. Mean (SD) CD-RISC 2-Item Summary Scores 49
Factor Analysis 50
Culture, Nationality and Ethnicity: Studies with the CD-RISC 58
Validity 62
CD-RISC: Predictive Validity, Treatment and Change over Time 94
Table 11a. Changes in CD-RISC 25 Associated with Intervention or Treatment 95
Table 11b. Changes in CD-RISC 10 and CD-RISC 2 Associated with an Intervention 97
Test Retest Reliability 107
Biological and Other Mechanistic Studies of the CD-RISC 108
Translations of the CD-RISC 116
Citations that Mention the CD-RISC or Report Original Research 117

Introduction

Our interest in resilience arose from long experience treating men and women with posttraumatic stress disorder (PTSD), as well as from our broad-range research into the disorder, which covered treatment assessment, diagnosis, biological characterization, cross-cultural study, epidemiology, risk factors and the development of measures for PTSD and other forms of anxiety.

Among the measures that we felt needed a stronger presence in the field of PTSD assessment was that of resilience. Although several scales addressing aspects of resilience have existed for some time, they had largely failed to penetrate into the world of clinical practice, treatment-outcome and biological research. We were further stimulated after including a brief single-item measure of stress vulnerability into one of our treatment outcome studies in PTSD. The results showed that an active medication allowed patients to deal better with stress than did a placebo. To the best of our knowledge, this was the first demonstration of such an effect, i.e., that a treatment for anxiety could boost stress coping/resilience more than a placebo control.

Authorized Versions of the CD-RISC

After a search of the resilience literature, which at that time was heavily influenced by contributions from the developmental psychology and child psychiatry fields, but with some important work in adults as well, we selected 17 domains, as outlined in Table 1 of our publication in 2003, and developed a 25-item scale (Connor KM, Davidson JRT. Depression and Anxiety 2003; 18: 71-82). This report presented psychometric data establishing validity and reliability of the scale (known as the Connor-Davidson Resilience Scale or CD-RISC), as well as briefly describing each of the 25 items (see Table 2 of that citation), and giving general scoring directions. However, the complete wording for each item and full directions did not appear in the report and the scale cannot be adequately reconstructed from the information given in this publication.

In the original validation study, mean scores in specific populations were reported as follows:

US general population	80.7
Primary care patients	71.8
Psychiatric outpatients	68.0
Generalized anxiety	62.4
PTSD samples	47.8/52.8

Many other studies have reported normative scores on the CD-RISC, the results of which are given below and summarized in Tables 1a-c for the 25-, 10-, and 2-item scales respectively. The mean and median scores as given for the US general population in Connor and Davidson (2003) are based on a sample of those who furnished complete responses to all items of the CD-RISC. ***In the entire sample (i.e., complete responses and those with missing items), the mean score was 79.0 (12.9) and median (1,3 Q) was 81 (71, 89) (Davidson and Lee, unpublished data 2011).***

Besides the full 25-item CD-RISC (or CD-RISC 25), there are two briefer versions, the 10-item (CD-RISC 10) and 2-item (CD-RISC 2) scales. The 10-item version (score range 0-40) comprises items 1, 4, 6, 7, 8, 11, 14, 16, 17, and 19 from the original scale, and was developed by Drs. Campbell-Sills and Stein, at the University of California, San Diego, on the basis of factor analysis. In a community survey of 764 US adults, a mean score of 31.8 (SD = 5.4) was obtained for the CD-RISC 10 [Campbell-Sills L, Forde DR, Stein MB. J Psych Res (2009), doi:10.1016/j.jpsychires.2009.01.013]. An almost identical mean score was obtained by Davidson (unpublished) in the US general population sample studied in the 2003 report above.

The CD-RISC 2 is based on items 1 and 8 (score range from 0-8), and was developed as a measure of “bounce-back” and adaptability by the original authors (Vaishnavi et al, 2007). In a general population survey of 458 US adults, mean CD-RISC 2 score was 6.91, while lower scores were observed in psychiatric groups with depression (5.12), GAD (4.96) and PTSD (4.70) (Vaishnavi et al, 2007) and in survivors of the Southeast Asian Tsunami of 2004 (Irmansyah et al, 2010).

All three versions have shown extensive validation and are useful in different ways. In one study of a limited sample (n = 74) of spinal cord injuries, the three scales were compared, and the authors concluded that the RISC-10 showed the more robust validity, reliability and practicality.

However, this study did not administer the scales separately, but extracted the shorter versions from the longer one (Kuiper et al, 2019). Many studies of the RISC-10 have consistently shown a one-factor structure (see below).

For a summary of all reports with the CD-RISC-10 and CD-RISC-2, please refer to Tables 9 and 10 below.

Unauthorized Versions of the CD-RISC

The above three versions of the CD-RISC are the only ones which are authorized for use. Attention is drawn to the existence of unauthorized versions, created without permission and/or in violation of copyright. These altered versions of the CD-RISC have undergone significant modifications either in item wording, addition or removal of items, change in the scoring choices or blending with other items to create entirely new scales. They include scales known as A Modified CD-RISC: Including Previously Unaccounted Resilience Variables (27 items), CD-RISC Expanded Kinyarwanda version (34 items), 6 items from the CD-RISC subsumed in abbreviated form in the Positive Psychology Outcome Measure (PPOM), a 29-item Arabic translation of the scale, a 3-item version of the scale (2016), a Ghanaian 18-item scale, and a 17-item Spanish scale (2012).

The CD-RISC literature continues to grow: the scale has now been translated into many different languages and studied in a variety of populations, including large community samples, survivors of various traumas, Alzheimer's caregivers, adolescents, elders, patients in treatment for PTSD, members of different ethnic groups and cultures, and selected professional or athletic groups (e.g., university students, nurses, social workers, physicians, military medical personnel, medical students, missionaries, cricketers). The CD-RISC has been included in studies of functional neuroimaging, genotyping and treatment outcome. Psychometric properties of the RISC hold up well, although its factor structure of the RISC-25 and mean score varies with setting. For this reason, we do not recommend separate scoring of the RISC-25 factor subscales that were originally reported by Connor and Davidson, although we recognize that some interesting findings have been reported when specific factors or items were analyzed (e.g., Laff, 2008; Garcia-Izquierdo et al, 2009).

Directions for Scale Administration, Scoring and Interpretation of Score

Directions: The CD-RISC is designed as a self-rating scale, although where necessary, an assistant may read out each statement to the subject and record the answer. The subject is directed to respond to each statement with reference to the previous month, understanding that if a particular situation has not arisen in this time, then the response should be determined by how the person thinks they would have reacted.

Scoring: Scoring of the scale is based on summing the total of all items, each of which is scored from 0-4. For the CD-RISC-25, the full range is therefore from 0 to 100, with higher scores reflecting greater resilience. We do not recommend other methods of scoring such as the subscales defined by factor analysis, any other derived subscales, item averaging, nor the adoption of a 1-5 scoring range for each item, as has been reported in some publications. We also do not support use of "partial" scales, such as items which have been determined by factor analysis or other statistical technique to produce a seemingly "purer" version of the CD-RISC.

For the CD-RISC-10, the total score ranges from 0-40, and for the CD-RISC-2, it ranges from 0-8.

Interpretation of Score: CD-RISC scores appear to be influenced by two main factors: location/region where data was obtained and nature of the sample. For the former, scores may vary according to country; for the latter, scores are generally lower in those with psychiatric problems and who are having difficulty coping with stress, as well as in younger adults, such as students, who may score lower than older adults. With those considerations in mind, we provide median and quartile scores obtained from the US and Hong Kong general populations as follows. The median score describes the midpoint of the frequency distribution. Quartiles describe four groups of equal number taken from the observed distribution of scores, with the first quartile (Q1) describing the score range for the lowest group (lowest 25% of the population), i.e. the least resilient, the second (Q2) and third (Q3) the intermediate scores, and the fourth (Q4) describing the highest or most resilient, i.e. above 75% of the population.

For the CD-RISC-25 in the US general population (n = 577), median score is 82, with Q1, Q2, Q3 and Q4 being 0-73, 74-82, 83-90, 91-100 (Connor and Davidson, 2003). Therefore, for example, a score of 55 would place the subject in the lowest 25% of the general population, and a score of 89 would fall in the 50-75% percentile, of third quartile: 25% would have a higher score than this.

For the CD-RISC-10 (n = 764), median score was 32, with lowest to highest quartiles being 0-29, 30-32, 33-36 and 37-40 (Campbell-Sills et al, 2009). Similar results were obtained in another US population (n=577) by Davidson and Lee. A score of 26 would fall in the lowest 25% of the population, a score of 36 would be the third quartile and 25% of the population would score higher (i.e. 37-40).

For the CD-RISC-2 (n = 577), median score was 7, and quartiles were 0-5, 6, 7, 8 (Campbell-Sills, personal communication, 2015). (Groupings could not be made into equal quartiles of 25, 50, 75 and 100%, and represent respectively 15, 36, 54 and 100% of the sample).

Results from a general population survey in Hong Kong (n = 10,997) showed a median CD-RISC-25 score of 62, and Q1, Q2, Q3 and Q4 ranges being 0-53, 54-62, 63-71 and 72-100 (Ni et al, 2015 and personal communication, 2016).

For the CD-RISC-2 (n = 10,997), Ni et al (2015 and personal communication, 2016) found a median score of 5, with Q1, Q2, Q3 and Q4 ranges being 0-4, 5, 6, 7-8 respectively.

Reading Ease and Reading Grade Level

Flesch Reading Ease calculations indicate a range from 75-77 for the 2-, 10-, and 25-item CD-RISC versions. Flesch-Kincaid Grade scores are 5.1 for all three versions of the scale. Interpretation of the Flesch score indicates that the scale should be easily understood by 12 year olds, although it has been used successfully in younger populations. A Flesch-Kincaid score of 5 indicates that that the scale is expected to be understood by those with a fifth grade level education.

A review is provided of the psychometric data on validity, reliability and factor structure, obtained in the various studies worldwide.

Demographic Features of the CD-RISC

AGE:
Mean CD-RISC scores vary across populations and may be affected by age, in that some studies found weakly positive correlations (Gillespie et al, 2008; Campbell-Sills et al, 2009; Rosenberg et al, 2015; Terrill et al, 2016; Boell, 2016; Lee et al, 2017; Seib et al, 2018), weakly negative correlations in more narrowly defined age-specific adolescent and older cohorts (Jorgensen and Seedat, 2008; Lamond et al, 2008; Yu et al, 2011; Wu et al, 2016), as well as in caregivers with a relative who had Alzheimer's disease (Wilks, 2006), or no relationship with age in cohorts spanning a broad age range (Connor and Davidson, 2003; Huang, 2010; Gucciardi et al, 2011; Derakhshanrad et al, 2014; Bozikas et al, 2016) or a narrow age range (Ziaian et al, 2012; Ristevska-Dimitrovska et al, 2015a; Tourunen et al, 2019). Liu et al (2015) did not find that age was a determinant of score.

ETHNICITY:
Ethnicity was a determining factor in two studies in South Africa and the USA (Jorgensen and Seedat, 2008; Marwitz et al, 2017), but not in others (Connor and Davidson, 2003; Wilks, 2006; Campbell-Sills et al, 2009). However, in Chinese, Japanese, Korean, and Iranian samples, the mean score was below those found in US populations (e.g., Yu and Zhang, 2007, Khoshouei, 2009), although the samples were different in nature, i.e., they were not representative of the general population. Ethnicity did not affect resilience score in a multi-ethnic group of Australian adolescent refugees (Ziaian et al, 2012). White and non-white surgeons did not differ in their CD-RISC-10 scores (33.4 vs 33.6) (Warren et al, 2013).

MARITAL STATUS & GENDER:
The relationships between CD-RISC score and marital status and gender are inconsistent. No relationship was found for either by Connor and Davidson

(2003), Wilks (2006), Lamond et al (2008), Jowkar et al (2010) or Derakhshanrad et al (2014), but lower scores were obtained in the widowed and in women by Campbell-Sills et al (2009), Yu et al (2011) and Levasseur et al (2017). Wu et al (2016) and Cao & Zhou (2019) found marital status unrelated to resilience, but married subjects had higher resilience scores in one study of TBI (Marwitz et al, 2017). No differences occurred when comparing single vs cohabiting Greek subjects (Tsigkaropoulou et al, 2018).

In a Chinese post-earthquake sample, men scored higher than women (Ni et al, 2015), as was the case in Nepalese earthquake survivors (Bhattarai et al, 2017). In Chinese medical students, Peng et al (2012) found significantly higher CD-RISC scores in men than in women, as did Kang et al (2013) and Mak et al (2018) in Korean college students (69.1 vs. 65.2 and 63.8 vs 55.6). Similar results were obtained in Canadian farmers (Jones-Bitton et al, 2019), Canadian medical students (Rahimi et al, 2014; Thompson et al, 2018) and US medical students (Houpy et al, 2017), and in a group of Greek psychiatric patients and controls (Tsigkaropoulou et al, 2018). Chinese men with type 2 diabetes scored higher than did women (Zhao et al, 2019), as did a group of Chinese students and depressives (Cheng et al, 2019).

In contrast to the above, some studies have found higher scores in women than men: an Australian study showed that adolescent girls (median=70) scored higher than boys (median = 58) in a refugee sample (Ziaian et al, 2012). Male Nigerian nursing students had significantly higher scores on the CD-RISC-10 than did women (30.1 vs 27.3) (Aloba et al, 2016), and young male adults with diabetes had significantly higher scores on the CD-RISC-2 than did females (6.5 vs 5.8) (D'Emden et al, 2017). Bozikas et al (2016) found that women with schizophrenia-spectrum disorder had higher resilience than men. Female Air Force recruits had higher scores than did males (Bezdjian et al, 2016). Boell (2016) noted that in Brazilians with chronic medical disease women had higher scores than men. Ameen (2018) noted higher scores in traumatized Iraqi adolescent girls (64.7) than in boys (51.7). Women volunteers in an Indian study scored higher than men on the RISC-25 (71.3 vs 64.6) (Singh et al, 2018). Similarly, for the RISC-10, a group of Chinese elders had a mean score of 27.6 for men and 28.6 for women ($p < 0.01$) (Meng et al, 2019).

No differences between men and women were found the studies listed in this paragraph. In a post-earthquake sample in Turkey, Karairmak found no difference in score between men and women (Karairmak, 2010). A study of

100 university students in Iran failed to show a difference in score between men (58.9) and women (57.4) (Ebrahimi et al, 2012), as was also the case in 60 patients with spinal cord injury (Kilic et al, 2013). No differences were found comparing men and women surgeons (33.6 vs 32.7) in a US sample (Warren et al, 2013). No differences were found between men and women, and married vs. unmarried Korean psychiatric outpatients (Min et al, 2013). Notario-Pacheco et al found no differences between men and women with fibromyalgia in a Spanish sample (Notario-Pacheco et al, 2014). Male and female university freshmen had similar scores in an English sample (Allan et al, 2014), although RISC predicted academic success in females but not clearly in males. A study of government employee earthquake survivors in Japan found no difference in RISC-25 scores for men and women (Tsuno et al, 2014). Likewise, Liu et al (2015) and Zhong et al (2016) failed to show differences between men and women in large Chinese community samples. No differences between men and women were found in a sample with physical disability (Terrill et al, 2016), in healthy US volunteers participating in an MRI study (Gupta et al, 2016) or in US veterans of Afghanistan and Iraq (Brancu et al, 2017), or in Australian subjects with ALS (Parkin Kullmann et al, 2018). The RISC-25 scores in 513 Chinese drug users were similar for men and women (Cao & Liu, 2019; Cao & Zhou, 2019). No differences occurred with the RISC-10 in a Finnish community study (Tourunen, 2019).

OTHER DEMOGRAPHIC VARIABLES:

A relationship has been found with level of education by Campbell-Sills et al (2009), Wu et al (2016), Marwitz et al (2017), Brown et al (2018), Carter (2019), Zhao et al (2019), but not by Lamond et al (2008) or Boell (2016). Higher income was related to higher levels of resilience (Wu et al, 2016; Lee et al, 2017). Unemployed survivors of an earthquake had lower levels of resilience than did employed survivors (Bhattarai et al, 2017), as did a sample of Greek subjects (Tsigkaropoulou et al, 2018).

In one large (n=764) community study of the CD-RISC 10, demographic factors were found to account for no more than 10% of the variance in score (Campbell-Sills et al, 2009).

Mean Scores of CD-RISC in Different Populations

Community populations: In their original report, Connor and Davidson (2003) reported a mean (sd) of 80.4 (12.8), from a random digit dial telephone survey of a national sample of US adults. This score was based on the inclusion of only subjects who provided complete responses to the scale. When all subjects were included, the mean score was 79.0 (12.9). In a smaller study of non-psychiatric US combat veterans, a similar score of 83.4 (9.9) was obtained by Morey et al (2008). In a general community sample (n=764) from Memphis, the mean CD-RISC 10 score was 31.77 (5.47), which is almost identical with that obtained by Davidson et al (unpublished) in a US community population (n=458) of 32.1 (5.8). In a Chinese community cohort, the mean CD-RISC-25 score was 65.4 (13.9) (Yu, personal communication, 5/18/09), pointing to population or cultural determinants of the total CD-RISC score. In a non-randomly selected Portuguese general population sample (n=421), the mean scores for the 25-, 10-, and 2-item versions of the CD-RISC were 73.4 (12.0), 29.3 (5.7) and 6.50 (1.23) (Faria, personal communication 7/22/2010). In a study of factors that determined successful aging, Jeste et al (2013) reported mean scores on the CD-RISC 10 that ranged from 30.8-32.1 according to age decile (50-59 up to 90-99). An Australian community sample showed mean scores for the CD-RISC-25 ranging from 71.5-73.5 in different age groups (Liu et al 2015). (In the Liu study, reported scores were 25 points higher due to use of a 1-5 scoring algorithm, and have been corrected here). These and other scores are summarized in Tables 1a-c.

Table 1a. Mean (SD) CD-RISC 25-Item Scores in General Population Samples

Authors	Scale	Number	Mean (SD)	Location	Comments
Connor et al (2003)	25	458	80.4 (12.8)	USA	National random digit dial sample
Lamond et al (2008)	25	1,395	75.7 (13.0)	USA	Community sample over age 60
Sutherland et al (2009)	25	64	82.7 (8.0)	USA	Women in university community; healthy controls in study of chemical dependency
Kavirajan et al (2011)	25	1,151	76.1 (12.6)	USA	Postmenopausal women in community
Goins et al (2012)	25	160	83.0 (13.4)	USA	Federally recognized Native American tribe
Yu et al (2009)	25	560	65. 4 (13.9)	China	Community sample
Yu et al (2009)	25	326	71.0 (11.3)	China	Parents (healthy controls in a study of autism)
Peng et al (2012)	25	1,998	61.7 (10.6)	China	Medical Students
Ni et al (2015)	25	10,997	60.0(13.9)	China	Hong Kong general population
Zhong et al (2016)	25	214 215	64.8(13.8) 62.3(15.0)	China	Elderly (>60 years) community sample no mental illness or cognitive problems
Wu et al (2017)	25	3960	63.4(13.1)	China	New employees in Chinese communities
Gong (2019)	25	6019	63.0	China	Grade 5-10 schoolchildren in Wuhan
Ha et al (2009)	25	143	66.8 (12.7)	Korea	Healthy volunteers
Faria et al (2010)	25	421	73.4 (12.0)	Portugal	Community sample Lisbon
Solano & Neto (2012)	25	103	75.4 (72.6,78.3, 95% CI)	Brazil	Family member normative controls of subjects with chronic pain
Alemi et al (2018)	25	232	60.5 (13.9)	Afghanistan	Community sample of young adults 18-35
Ziaian et al (2012)	25	53 35 82	60 69 67	Australia	Refugees from Africa, Yugoslavia, Middle East
Liu et al (2015)	25	1,892 2,062 1,826	71.5 (12.5) 71.4 (13.4) 73.4 (13.6)	Australia	Australian community cohort - three age groups 28-32, 48-52 and 68-72
Law et al (2014)	25	79	71.3 (10.8)	Australia	Centenarians
Bonaccio et al (2019)	25	10,812	66.7 (12.4)	Italy	General population in Southern Italian town, age above 34 years

Table 1b. Mean (SD) CD-RISC 10-Item Scores in General Population Samples

Authors	Scale	Number	Mean (SD)	Location	Comments
Davidson (2003)	10	458	32.1 (5.8)	USA	National random digit dial sample
Campbell-Sills et al (2008)	10	764	31.8 (5.4)	USA	Community random digit dial sample in Memphis
Goins et al (2012)	10	160	33.5 (6.2)	USA	Federally recognized Native American tribe
Jeste et al (2013)	10	1,006	30.8(7.0) to 32.1(6.2) range by age group	USA	Community sample of older people ages 50-99
Levasseur et al (2017)	10	4541	31,0 (0.1) 32.0 (0.1)	Canada	Older age community sample
Hebert (2019)	10	784	26.6	Canada	College women
Faria et al (2011)	10	421	29.3 (5.7)	Portugal	Community sample Lisbon

Lopes and Martins (2011)	10	463	29.1 (5.5)	Brazil	Adult sample
Antunez et al (2015)`	10`	1,922	29.0 (0.1)	Spain	Adult sample
Wetherall et al (2018)	10	2,534	29.6	Scotland	Adults 18-34 years of age – national sample
Tourunen (2019)	10	958	31.1	Finland	Elders in city of Jyvaskyla
Meng et al (2019)	10	1238	27.6 Men 28.6 Women	China	Elders age 60 and above – community activity center sample
Metel (2019)	10	2614	34.8	Poland	Young adult general population

Table 1c Mean (SD) CD-RISC 2-Item Scores in General Population Samples

Authors	Scale	Number	Mean (SD)	Location	Comments
Vaishnavi et al (2008)	2	458	6.91(1.5)	USA	National random digit dial sample
Lee et al (2008)	2	1,969	6.47 (1.37)	USA	National RDD violent trauma sample different from above
Campbell-Sills et al (2008)	2	764	6.62(1.33)	USA	Community random digit dial in Memphis
Faria et al (2011)	2	421	6.50 (1.23)	Portugal	Community sample Lisbon
Ni et al (2015)	2	10,997	5.03(1.37)	China	Hong Kong general population
Rapacciuolo et al (2016)	2	571	5.87(1,69)	Italy	Community sample of over 60 years age in Naples
Sørensen (2018)	2	925	6.72 (1.15)	Norway	General population

Adolescents, Students and Young Adults: There have been a number of reports from children, adolescents, university students and young adults, summarized in Table 2. Scores ranged in one South African study from 56.3 (19.4) - 71.1 (15.8) according to ethnic group (Jorgensen and Seedat, 2006), and were 65.9 (18.5) in another South African study (Bruwer et al, 2008). In a third South African study, Fyncham et al (2009) reported the mean score to be 63.7 (15.9) in over 700 students of mean age 16.7 years. An Iranian study of undergraduates revealed a mean score of 68.3 (17.5) (Khoshouei, 2009). In young Australian adults and undergraduates (Benetti & Kambouropoulos, 2008), the mean score was 68.3 (12.3). Clauss-Ehlers and Wibrowski (2007) studied a group of high school graduates transitioning to college, and reported a mean (sd) CD-RISC score of 73.1 (14.1) before a preparation course.

Russian schoolchildren (mean age 13 years) who survived a terrorist attack had a mean score of 70.1 (14.0) (Vetter et al, 2010). Dutch undergraduate students (mean age 19.6 years) showed a mean score of 66.4 (10.8).

Incoming college students in Texas had a mean score of 67.7 (10.0) before a four-week resiliency program (Steinhardt and Dolbier, 2008).

Ito et al (2009) have reported a mean (sd) CD-RISC score of 55.8 (14.8) in Japanese university students (mean age 20.1), and 64.3 (16.7) in adults (mean age 38.9) who took a university course.

In 79 Dutch undergraduate volunteers (mean age 19.6 years), the mean CD-RISC score was 66.4 (10.8) (Giesbrecht et al, 2009), while in a later study from the same country, the mean score was 63.9 (14.2) (Markovitz et al, 2014).

Otto and colleagues (2010) studied 856 college students in Arizona, average age 18.9, and found the mean CD-RISC score to be 72.9 (13.5).

A cohort of 220 first year psychology students yielded a mean score of 28.0 (5.7) on the CD-RISC 10 (Shlomi, 2010).

A somewhat older college population (n=51, mean age 31.2 years) was studied 19 months following a major earthquake in Pakistan. The mean CD-RISC score was 81.2 (12.3) (Ahmad et al, 2010).

A group of 401 Australian university students, mean age 23.6, demonstrated a mean CD-RISC score of 69.1 (13.4) (Bitsika et al, 2010).

Among 2,914 Chinese adolescents (mean age 14.4, range 13-17) sampled in Chengdu following a major earthquake, the total score mean was 69.6 (13.2 sd) (Yu et al, 2011). A large general community sample of over 6000 5th to 10th grade schoolchildren in Wuhan scored 63.0 (18.5) on the RISC-25 (Gong et al, 2019).

In a Canadian study of homeless youth (mean age 18.2, range 15-21), resilience was higher in those with the longest period of homelessness, and was a significant protector against suicidal ideation (Cleverley and Kidd, 2011).

In a group of 190 Singaporean adolescents, the mean scores were 71.1, 27.9 and 5.76 for the 25-, 10- and 2-item scales (Lim et al, 2011).

Brown and Tylka (2011) observed a mean score of 76.0 (13.2) in 290 African American students.

Notario-Pacheco et al (2011) reported good psychometric properties for the CD-RISC 10 in Spanish university students. The mean score was 27.4.

Stephens (2012) evaluated 70 adolescent nursing students, grouped by whether they were randomized to a treatment or non-treatment cohort. Their mean baseline scores were 75.2 and 74.5.

Hartley (2012) assessed a student counseling clinic sample of college students with a history of mental illness (n=121) and a group of classroom subjects (n=605). Significantly lower RISC-10 scores were noted in the former group: 19.6 (8.2) vs. 30.1 (5.2). The 10-item scale performed better than the 25-item scale in this study.

Ziaian et al (2012) studied 170 refugees from Bosnia, Serbia, Iran, Iraq, Afghanistan, Sudan and Liberia, and found a low mean CD-RISC score (62.2). Significantly lower scores were observed in males, recent arrivals and those with depression or behavior disturbance. Exposure to trauma and area of origin were not factors that affected level of resilience.

These and other scores are summarized in Tables 2a-c.

Table 2a. Mean (SD) CD-RISC 25-Item Scores in Children, Adolescents, Students and Young Adults

Authors	Scale	Number	Mean (SD)	Location	Diagnostic group
Clauss-Ehlers and Wibrowski (2007)	25	95	73.1 (14.1)	USA	High school graduates
Steinhardt and Dolbier (2008)	25	27 30	70.6 (12.3) 67.7 (10.0)	USA	College freshmen undergoing either treatment or control group
Otto et al (2010)	25	856	72.9 (13.5)	USA	College students
Johnson et al (2011)	25	45 M 43 F	77.8(10.3) 73.6(11.0)	USA	College students in a study of alcohol use habits
Hartley (2011)	25	605	75.7(11.9)	USA	Undergraduate students
Brown and Tylka (2011)	25	290	76.0(13.2)	USA	African American students
Stephens (2012)	25	70	74.5 75.2	USA	Nursing students control group Nursing students pre treatment
Bezdjian et al (2016)	25	53,672	83.6(11.0)	USA	Air Force recruits (mean age 20.1 yrs)
Wamser-Nanney et al (2017)	25	429	69.8 (17.6)	USA	Trauma-exposed college students mean age 19
Lekan et al (2018)	25	100	73.3	USA	Nursing students
Benetti and Kambouropoulos (2008)	25	240	64.3 (12.3)	Australia	Adult undergraduates
Bitsika et al (2010)	25	401	69.1 (13.4)	Australia	University students
Gucciardi et al (2011)	25	199	73.0 (10.9)	Australia	Teenage cricketers
Ziaian et al (2012)	25	170	62.2 (20.40)	Australia	Adolescent refugees
Pidgeon and Keye (2014)	25	141	90.7 (12.6)	Australia	University students
Innes (2016)	25	194	65.0(12.9)	Australia	Chiropractic students
Walker (2019)	25	30	65.1	Australia	Healthy young adults
Trip et al (2018)	25	282	71 (19 IQ)	New Zealand	Nursing students exposed to earthquake
Jorgensen and Seedat (2006)	25	701	64.8 (18.9)	South Africa	School sample adolescents
Bruwer et al (2008)	25	502	65.9 (18.6)	South Africa	Convenience sample of high school students mean age 16.2
Rogers (2016)	25	62	77.4	South Africa	Clinical associate students
Fyncham et al (2009)	25	787	63.7 (17.9)	South Africa	Secondary school sample
Yu et al (2011)	25	2,914	69.6 (13.2)	China	Adolescent earthquake survivors
Peng et al (2012)	25	1,998	61.7 (10.6)	China	Medical students
Fu et al (2013)	25	2,132 1,988	50.5 (19.9) 50.2 (19.5)	China	Adolescent and child survivors of earthquake
Chen et al (2014)	25	32	49.3 (6.5) 52.7 (17.9)	China	Adolescent earthquake survivors who lost a parent: pre-treatment scores
Shi et al (2016)	25	2,968	68.2 (14.3) 70.4 (14.4)	China	College freshmen “left behind” College freshmen controls
Lü et al (2016)	25	82	63.5 (18.7)	China	Healthy college students
Lu et al (2017)	25	474	57.9 (13.2)	China	Community sample of elderly adults
Chen et al (2018)	25	310	64.3 (13.2)	China	College students
Li et al (2019)	25	1065	58.9 (16.8)	China	College students
Gong (2019)	25	6019	63.0	China	Community sample 5th-10th graders
Khoshouei et al (2008)	25	323	68.3 (17.5)	Iran	Undergraduates
Ebrahimi et al (2012)	25	100	58.1 (7.4)	Iran	University students
Zakiei et al (2017)	25	260	80.9	Iran	University students
Ameen & Cinkara (2018)	25	223	63.7 (12.0)	Iraq	Adolescent refugees Syria and Iraq
Ameen (2018)	25	143	54.7 (10.3)	Iraq	Displaced adolescents Iraq

Ito et al (2009)	25	220 434	55.8 (14.8) 64.3 (16.7)	Japan	Undergraduates mean age 20 Undergraduates mean age 39
Sidheek et al (2017)	25	606	61.6 (13.5)	India	Low income girls ages 16-18
Allan et al (2014)	25	1,534	75.1 (12.8)	England	University freshmen
Giesbrecht et al (2009)	25	79	66.4 (10.8)	Netherlands	Undergraduates
Markovitz et al (2014)	25	254	63.9 (14.1)	Netherlands	Dutch students
Vetter et al (2010)	25	94	70.1 (14.0)	Russia	Schoolchildren ages 10-16 who survived a terrorist attack in Ossetia, some of whom had PTSD
Cleverley and Kidd (2011)	25	47	60.9 (18.9) 53.1 (19.0)	Canada	Homeless youth (male) Homeless youth (female)
Lim et al (2011)	25	190	71.13	Singapore	Adolescents mean age 12.8 (range 12-16)
Kang et al (2013)	25	321	67.2 (12.7)	Korea	College students
Nam et al (2018)	25	268 251	63.0 62.0	Korea	Middle school students – male and female

Table 2b. Mean (SD) CD-RISC 10-Item Scores in Children, Adolescents, Students and Young Adults

Authors	Scale	Number	Mean (SD)	Location	Diagnostic group
Campbell-Sills et al (2007)	10	131	27.2 (5.8)	USA	College undergraduates
Hartley (2012)	10	605	30.1 (5.3)	USA	Normative student sample
Jones et al (2017)	10	39	33.5(18.4) 24.1(6.3) 26.4(18.3)	USA	Juvenile male healthy controls Juvenile sexual offenders Juvenile child sexual abuse offenders
Reyes et al (2017)	10	20	31.8 (5.3)	USA	Student veterans
Lekan et al (2018)	10	100	28.6	USA	Student nurses
Klibert (2019)	10	48	31.6 treated 28.1 control	USA	University students
Taylor (2019)	10	123	Not given	USA	Children 10-12 – RISC predicted optimism
Shlomi (2010)	10	220	28.0 (5.7)	Canada	Psychology students
Rahimi et al (2014)	10	155	28.8 (4.4) 31.2 (5.2)	Canada	Medical students – female < male scores
Thompson (2018)	10	188	19.7	Canada	Medical students – female < male scores
Durish (2019)	10	93	26.1 (6.0)	Canada	Adolescents post concussion
Lim et al (2011)	10	190	27.88	Singapore	Adolescents mean age 12.8 (range 12-16)
Lee et al (2016)	10	1094	25.8 (8.0) 30.8 (9.2) 26.3 (8.0) 24.2 (7.3)	Korea	All students (n=1094) Morning type (n=52) Intermediate type (n=656) Evening type (n=350)
Skrzypiec et al (2018)	10	2050	29.3 (7.3)	China	School pupils aged 10-15
Chow et al (2018)	10	678	24.0 (5.7)	China/Hong Kong	Student nurses
Wong (2019)	10	221	28.7/26.9	China	Healthy adolescents (men and women)
Cheng (2019)	10	2230	26.3	China	Undergraduates
Notario-Pacheco et al (2011)	10	681	27.4 (6.4)	Spain	University first year students mean age 20.1 (18-30)
Markovitz et al (2014)	10	254	25.7 (6.8)	Netherlands	Dutch students
Leventhal et al (2015)	10	1,730 737	20.8 22.2	India	Rural schoolgirl population mean age 12.9 years
Mathad et al (2017)	10	194	26.3(6.3)	India	Nursing students
Montero-Marin et al (2014)	10	314	27.8 (6.7)	Spain	Dental students
Farkas & Orosz (2015)	10	465	28.0 (0.6)	Hungary	Students
Orosz et al (2018)	10	343	28.2	Hungary	High school and university students
DiFabio & Saklofske (2014)	10	164	24.8 (6.2)	Italy	High school students
Aloba et al (2016)	10	449	26.7	Nigeria	Student nurses
Lu (2019)	10	134	21.9 – 24.5	Colombia	Children with functional g-i disorders
Chamberlain et al (2016)	10	240	32.0 (5.7)	Australia	Third year student nurses
Ehrich et al (2017)	10	288	26.1 (6.0)	Australia	University students
Tolentino & Suba (2019)	10	72	32.0	Philippines	7th and 8th grade children

Table 2c. Mean (SD) CD-RISC 2-Item Scores in Children, Adolescents, Students and Young Adults

Authors	Scale	Number	Mean (SD)	Location	Diagnostic group

Lim et al (2011)	2	190	5.76	Singapore	Adolescents mean age 12.8 (range 12-16)
Markovitz et al (2014)	2	254	5.61 (1.44)	Netherlands	Dutch students
Monrad et al (2018)	2	310	6.4	USA	Medical students
Lu et al (2016)	2	218	6.46 (1.72)	Taiwan	Student athletes
Heo et al (2018)	2	1866	5.6 (1.7)	Korea	Adolescents in school system

Psychiatric Groups: Mean (SD) scores in a range of psychiatric groups are listed in Tables 3, 4, and 5. These have been grouped into PTSD/Severe trauma, depression/suicide, and other diagnoses.

Several studies have examined the CD-RISC in populations with posttraumatic stress disorder (PTSD) (see Tables 3a-c). It is evident that scores in those with PTSD are much below the normative population scores. One study in China assessed cutoff scores using ROC curves in 115 rehabilitation patients, and found that scores of 45.5 and 19.5 for the CD-RISC-25 and CD-RISC-10 respectively provided best discrimination at AUC values of 0.76 and 0.78. The CD-RISC-2 failed to separate (Peng et al, 2014), but did discriminate between groups in a Korean study of firefighters (Jeong et al, 2015).

Table 3a. Mean (SD) CD-RISC 25-Item Scores in Post-Traumatic Stress Disorder & Subjects Exposed to Severe Trauma

Authors	Scale	Number	Mean (SD)	Location	Comments
Connor et al (2003)	25	22	47.8 (19.5)	USA	Treatment seeking cases
Connor et al (2003)	25	22	52.8 (20.4)	USA	Treatment seeking cases
Davidson et al (2007)	25	100 94	57.0 (16.0) 54.2 (16.2)	USA	Tiagabine group pre-treatment Placebo group pre-treatment
Morey et al (2009)	25	20	66.7 (15.8)	USA	OIE/OEF veterans
Mansfield et al (2011)	25	1,843 1,226	76.2 (16.0) 72.8 (16.6)	USA	Navy personnel Marines All were mandatory pre-separation assessments
Tsai et al (2012)	25	86 76	59.6 (19.1) 72.0 (14.3)	USA	OEF/OIF Veterans with PTSD Other Rx seeking OEF/OIF veterans
Anderson and Bang (2012)	25	52 16	74.2 (15.0) 61.1 (14.7)	USA	Asymptomatic abuse survivors Abuse survivors with PTSD
Krystal et al (2014)	25	20	62.0 (19.8)	USA	PTSD civilian clinical trial sample
Green et al (2014)	25	1,981	72.7 (18.4)	USA	Post 9/11 US veterans
Asnaani et al (2015)	25	118	68.4 (20.7)	USA	PTSD clinical sample with nicotine withdrawal
Elliott et al (2015)	25	127	80.9(14.0 61.8(21.5) 61.9(18.9)	USA	Resilient cluster – OEF/OIF veterans Overcontrolled cluster Undercontrolled cluster
Burton (2019)	25	10 & 10	55.7 & 57.0	USA	PTSD – two veteran groups in RCT
Glass (2019)	25	39	64.3	USA	Psych OP with history of recent trauma
Davidson et al (2006)	25	161	55.7 (18.4)	International	Prior to receiving drug
Davidson et al (2006)	25	168	53.0 (17.2)	International	Prior to receiving placebo

Thabet et al (2011)	25	99	81.9 (18.0)	Gaza	Women survivors of domestic abuse: not all had PTSD
Mehta et al (2018)	25	48 48	68.2 (1.2) 79.1 (0.9)	Australia	Non-PTSD combat veterans PTSD combat veterans
Connell et al (2013)	25	54	72.1 (12.2)	South Africa	Combat veterans, 33% with PTSD
Marx et al (2017)	25	22 31	60.8 (15.4) 80.7 (11.1)	South Africa	PTSD – psychiatric patients Healthy controls
Blanc et al (2016)	25	167	66.4 (18.4)	Haiti	Earthquake survivors
He et al (2013)	25	410	67.8 (11.7)	China	Burn injury patients
Ying et al (2014)	25	788	55.0	China	Adolescent (12-19 years) earthquake survivors
Chen et al (2014)	25	32	51.8 (13.2) 49.3 (6.5) 52.7 (17.9)	China	Bereaved adolescent earthquake survivors assigned to three treatment groups
Ni et al (2015)	25	495		China	Sichuan earthquake survivors five years follow-up
Zhang et al (2017)	25	222	56.9(16.0)	China	Parents bereaved of their only child. Randomized stratified community sample Changsha
Ssenyonga et al (2013)	25	426	51.9 (15.0) PTSD 51.5 (17.8) No PTSD	Uganda	Congolese refugees with and without PTSD
Ameen	25	143	54.7 (17.1)	Iraq	Adolescents displaced and/or loss of home and family
Ghisi et al (2013)	25	76	61.3 (17.3) 74.2 (10.0)	Italy	Industrial accident victims (39% with PTSD) and matched controls
Brunetti et al (2017)	25	19 19	66.7 (8.9) 72.2 (13.9)	Italy	PTSD Trauma +ve/No PTSD
Fu et al (2013)	25	2,132 1,988	50.5 (19.9) 50.2 (19.5)	China	Child and adolescent survivors of Sichuan earthquake. Mean age 11.7 years (range 6-16). Control and intervention groups were studied.
Bhattarai et al (2017)	25	82	64.8 (14.0)	Nepal	Earthquake survivors with spinal cord injury
Tsuno (2014)	25	825	48.5 (16.1)	Japan	Government employee survivors of Great Eatern Earthquake
Kukihara et al (2014)	25	241	50.8 (19.6)	Japan	Older adult survivors of Fukushima earthquake, tsunami and nuclear accident; 53% PTSD and 67% depression
Noda et al (2018)	25	55 165	55.1 59.3	Japan	PTSD earthquake rescue workers No PTSD EQ rescue workers
Imai (2019)	25	56 72	41.2 59.2	Japan	PTSD women Healthy control women
Jeon et al (2017)	25	10	50.0 (15.8) 57.6 (18.3)	Korea	Ferry sinking survivors before and after treatment
Bell et al (2018)	25	28 89	47 (13.5) 75 (12.0)	New Zealand	PTSD from earthquake Earthquake survivor controls

Table 3b. Mean (SD) CD-RISC 10-Item Scores in Post-Traumatic Stress Disorder & Subjects Exposed to Severe Trauma

Authors	Scale	Number	Mean (SD)	Location	Comments
Grattan et al (2011)	10 10 10 10	71 23 47 47	29.1 (6.1) 29.9 (5.9) 30.0 (6.5) 28.5 (5.5)	USA USA USA USA	Deepwater Horizon Oil Spill
Melvin et al (2012)	10	60	31.0 (6.5)	USA	Combat veteran couples
McCanlies et al (2014)	10	114	29.9 (6.3)	USA	Police officers post Hurricane Katrina
Rainey et al (2014)	10	110	31.3	USA	Traumatic injury; hospitalized patients
Pietrzak et al (2014)	10	1,686	30.3 (6.6)	USA	National sample of older veterans age 60-96
Wingo et al (2017)	10	246	23.6(7.9)	USA	Veterans with PTSD and depression
Davidson et al (2008)	10	329	20.1 19.9	International International	Prior to drug treatment Prior to receiving placebo
Klasen et al (2010)	10	330	22.7 (8.3)	Uganda	Former child soldiers aged 11-17
Tran et al (2013)	10	84	25.9 (6.7) 31.1 (6.1)	Austria	WW II survivors with PTSD WW II survivors without PTSD
Wang et al (2010)	10	341	24.8 (7.4) 20.8 (6.3) 26.8 (6.3)	China	Earthquake survivors – whole group PTSD group Non-PTSD controls
Wu et al (2015)	10	318	24.8 (7.5)	China	Earthquake survivors (Results given in paper based on 1-5 scoring algorithm, and are corrected here)
Duan et al (2015)	10	95	25.5 (4.9)	China	University students with PTSD and posttraumatic growth
Jeong (2019)	10	50 66	50 66	Korea	PTSD without MDD PTSD with MDD
Okuyama et al (2014)	10	1,973	20.5 (0.7)	Japan	Adolescent survivors of Great East Japan Earthquake
Bibi et al (2018)	10	70	27 & 17	Pakistan	Men and women burn injury patients
Reyes (2019)	10	188	28.7 30.8	USA	PTSD No PTSD Filipino-American women

Table 3c. Mean (SD) CD-RISC 2-Item Scores in Post-Traumatic Stress Disorder & Subjects Exposed to Severe Trauma

Authors	Scale	Number	Mean (SD)	Location	Comments
Davidson et al (2008)	2	329	4.53 4.56	International International	Prior to receiving drug Prior to receiving placebo
Jeong et al (2015)	2	222	6.0 (1.2) 5.1 (1.5) 4.4 (1.5)	Korean firefighters	Control group PTSD or depression alone PTSD with depression
Langhinrichsen-Rohling et al (2017)	2	120	3.94 5.66 6.03	USA primary care/behavioral health	PTSD PTSD possible PTSD unlikely

Osofsky et al (2018)	2	736	4.78(1.85)	USA	Deepwater Horizon Oil Spill clinical sample

Studies looked at depression and also some have examined resilience scores in relation to a history of suicide attempts or ideation. In depression, the scores have ranged from 39-63, perhaps affected by the sample, phase of illness and level of recovery at the time of assessment. Minor depression was associated with scores intermediate between wellness and major depression. Those who went on to respond poorly to treatment had lower scores than did those who responded well (Camardese et al, 2007). A small study of 9 outpatients with depression and/or anxiety prior to group therapy showed a very low mean CD-RISC score of 39.0 (12.2) (Dodding et al, 2008). Their non-symptomatic significant other partners (n=11) scored 62.8 (11.7).

In a sample of abstinent substance abusers who either had, or had not, attempted suicide, the mean scores were 49.8 and 62.7 respectively (Roy et al, 2006). Subsequent studies comparing suicide-attempters (SA) with non-attempters have consistently found lower CD-RISC scores in the former group. Nrugham et al (2010) found Norwegian schoolchildren with depression and a history of SA showed lower resilience (55.4 (13.4) than depressed adolescents with no SA (62.4 (13.6). In veterans of OIF and OEF, Pietrzak et al (2009b) reported scores of 60.9 (2.8 s.e.) in those with SA and 75.5 (1.0 s.e.) in those without such history. In 903 Italian prisoners, the CD-RISC score was lower among those with a history of SA (56.4 (16.0)) than in those without (65.1(13.1)) (Sarchiapone et al, 2009). Liu et al (2014) found that low CD-RISC scores predicted suicide attempts in a large community sample.

With the RISC-10, scores were several points lower indepreesd groups than controls.

These scores are summarized in Table 4.

Table 4a. Mean (SD) CD-RISC 25 Scores in Subjects with Depression, Suicide Attempts or Suicidality

Authors	Scale	N	Mean (SD)	Location	Comments
Davidson et al (2005)	25	41	57.1 (13.3)	USA	Major depression outpatient sample
Pietrzak et al (2009b)	25	34	60.9 (2.8 se)	USA	Suicide attempting OIF/OEF veterans

Vahia et al (2010)	25	401 137	71.7 (12.5) 63.4 (14.7)	USA	Community sample post-menopausal women with sub threshold depression Community sample post-menopausal women with major depression
Lavretsky et al (2010)	25	20 20	60.2 (16.7) 66.6 (17.7)	USA USA	Alzheimer's Caregivers Alzheimer's Caregivers
Lavretsky et al (2011)	25	36 37	60.5 (14.0) 56.9 (13.4)	USA	Depressed older subjects to receive tai chi or health education
Laird et al (2018)	25	337	58.2 (16.0)	USA	MDD in older subjects mean age = 70.4
Laird et al (2018)	25	143	55.7 (14.8)	USA	Geriatric MDD in antidepressant trial
Soczynska et al (2017)	25	29 46	43.3 (15.3) 57.1 (19.1)	Canada	Depressed bipolar Euthymic bipolar
Singh et al (2014)	25	90	77.4 CT 55.5 RA 47.7 DP	India	Psychogeriatric and medical geriatric OP sample. Depression < Rheumatoid arthritis < Healthy controls
Roy et al (2006)	25	41	49.8	Italy	Suicide attempting substance abusers
Camardese et al (2007)	25	102	53.3 (15.2) 41.2 (19.5)	Italy	Major depression which responded to treatment Depression which failed to respond.
Roy et al (2007)	25	30	39.7 (3.7 se)	Italy	Suicide attempting substance abusers, some with history of depression
Sarchiapone et al (2009)	25	131	56.4 (16.0)	Italy	Prisoners with history of suicide attempt
Bauriedl-Schmidt et al (2017)	25	45	71.7(13.9) 48.5(20.3) 44.3(17.1)	Germany/ Austria	Healthy controls > Chronic and episodic depression; chronic = episodic depression
Min et al (2012)	25	80	46.1 (18.7)	Korea	Major depression, dysthymia or depression NOS
Seok et al (2012)	25	52	43.9 64.9	Korea	Major depressive disorder Healthy controls
Min et al (2013)	25	230	47.4(20.2)	Korea	Outpatients with depression and/or anxiety disorder
Um et al (2014)	25	254	46.0 (20.8)	Korea	Depressed outpatients
Choi et al (2015)	25	62 62	60.5 72.8	Korea	Euthymic bipolar disorder patients Healthy controls
You & Park (2017)	25	2034	50.2(15.9)	Korea	Community sample of elders: in men high CD-RISC score protected against suicidal behavior
Chung et al (2018)	25	224 77 958	52.9 54.2 63.6	Korea	Major depression Bipolar disorder Healthy controls (HC>BD>MDD)
Mak et al (2018)	25	837	63.8 Men 55.6 Women	Korea	Internet addiction mediates relation between depression and resilience in university students
Ristevska-Dimitrovska et al (2015a)	25	218	79.1 68.2 56.4	Macedonia	Not depressed breast cancer Subthreshold depression breast cancer Major depression breast cancer
Dodding et al (2008)	25	9	39.0 (12.2)	Australia	Major depression
Nrugham et al (2010)	25	76 176	55.4 (13.4) 62.4 (13.6)	Norway	Depressed teenagers with history of suicide attempt Depressed subjects without suicide history
Bozikas et al (2018)	25	40 40	61.9 73.2	Greece	Bipolar disorder Healthy controls
Edraki & Rambod (2018)	25	113	37.5 65.3	Iran	Depressed parents of diabetic children Full sample of all parents

Ariapooran et al (2018)	25	146	57.9	Iran	Bereaved women – 48% had suicidal ideation

Table 4b. Mean (SD) CD-RISC-10 and CD-RISC-2 Scores in Subjects with Depression, Suicide Attempts or Suicidality

Authors	Scale	n	Mean (SD)	Location	Comments
Poole et al (2017a)	10	277 3413	22.3(7.6) Dep 31.0 Non-dep	Canada	Primary care
Wetherall et al (2018)	10	498 403	25.4 Suicide ideas 23.4 Suicide attpt	Scotland	National young adult sample
Kishore et al (2018)	10	437 27	27 23	India	Non-depressed pregnant women Depressed pregnant women
Cheng (2019)	10	293	16.2	China	Depressed
Lee et al (2019)	10	26 depr 78 non depr	26.5 31.6	Taiwan	Lung cancer patients with/without depression
Akeman (2019)	10	248	29.0	USA	Undergraduates with mild depression
Lewis (2017)	2	697	5.8	England	Primary care with subthreshold depr

CD-RISC scores have been reported in subjects with other psychiatric disorders or pathology, including generalized anxiety, generalized social anxiety, substance use problems, bipolar disorder, pain, insomnia and schizophrenia, as shown in Tables 5a and 5b.

Table 5a. Mean (SD) CD-RISC 25-Item Scores in Groups with Other Psychiatric Disorders

Authors	Scale	Number	Mean (SD)	Location	Comments
Connor et al (2003)	25	24	62.4 (10.7)	USA	Generalized anxiety disorder
Simon et al (2009)	25	103	48.7 (15.6)	USA	Generalized social anxiety disorder
Sutherland et al (2009)	25	64	63.8 (17.7)	USA	Chemical dependency
Elliott et al (2016)	25	127	81.0(14.0) 61.9(18.6) 61.8(21.4)	USA	Resilient personality Undercontrolled personality Overcontrolled personality
Baslet et al (2017)	25	46	55.9 (18.1) 67.8 (17.3)	USA	Psychogenic seizures & altered responsiveness Psychogenic seizures & no altered responsiveness
Williams (2018)	25	26 27	62.6 80.5	USA	Dissociative/functional neurological disorders and healthy controls
Compton (2019)	25	292	66.6	USA	Commun MHC pts with psychosis or mood disorder
Roy et al (2006)	25	59	62.7	Italy	Abstinent substance abusers
Roy et al (2007)	25	70	62.9 (2.5 se)	Italy	Abstinent substance abusers

Carli et al (2011)	25	1,420	64.3 (14.7)	Italy	1,427 prisoners, 568 with insomnia – RISC was lower in the insomnia group (data not given).
Carli et al (2013)	25	1,356	65.1 (14.1)	Italy	Male prisoners – 51% with Axis I disorder (Substance use disorder in 39%)
Callegari et al (2016)	25	91 56 50	66.2(1.3se) 62.4(1.6) 56.4(1.7)	Italy	Older adults in community In nursing home Psychiatric nursing home group – mainly depressed or psychotic
De Berardis et al (2019)	25	103 All 33 A + 70 A -	50.6 (10.5) 42.8 54.1	Italy	First episode major depression. Alexithymia +ve lower than Alexithymkia -ve.
Deane and Andresen (2006)	25	24	60.3 (18.5)	Australia	Schizophrenia
Deane and Andresen (2006)	25	119	63.0 (18.3)	Australia	Schizophrenia
Hansen and Thomassen (2010)	25	15	57.1 (14.4)	Norway	Schizophrenia
Torgalsbøen (2012)	25	15	61.3 (13.3)	Norway	Schizophrenia in recovery or remission
Bozikas et al (2016)	25	48 81	61.6(21.0) 71.2(10.4)	Greece	Schizophrenia spectrum Healthy controls
Jafari et al (2010)	25	27	53 (10) 52 (5)	Iran	Males with substance dependence
Zakiei et al (2017)	25	260	80.9	Iran	University students assessed for obsessive-compulsive personality disorder
Min et al (2012)	25	41	53.6 (21.0)	Korea	GAD, panic, OCD, SAD mostly
Park et al (2018)	25	54 80	40.7 62.2	Korea	High risk for psychosis Healthy controls
Kim et al (2019)	25	71 HC 60 SCH 47 HRP	65.3 50.8 40.9	Korea	Scores lower in schizophrenia and high risk for psychosis gropus compared to healthy controls
Solano & Neto (2012)	25	108 41	57.7 52.1	Brazil	Anxiety Borderline Personality Disorder
Schibalski et al (2017)	25	676	61.1(12.7)	Germany	Elevated psychiatric symptoms in representative population survey
Obbarius et al (2018)	25	521	56.1 (17.2)	Germany	Psychosomatic disorder patients
Jiao et al (2016)	25	208	57.6 (15.9)	China	Methadone maintenance treatment patients
Lee et al (2016)	25	68 68	60.5 (18.4) 69.3 (11.1)	China	Euthymic bipolar disorder patients Healthy controls
Deng et al (2018)	25	81 34 52	48.6 61.4 69.8	China	Schizophrenia Bipolar disorder Healthy controls
Yang et al (2018)	25	426	77.7	China	Substance use disorder
Yang et al (2019)	25	298	82.3	China	Substance use disorder
Chen (2019)	25	407	54.4	China	Schizophrenia/s-affective psychosis
Cao & Liu (2019) and Cao & Zhou (2019)	25	399 114	71.5 70.0	China	Men and women drug users. M=W RISC score
Hoseiny et al (2015)	25	30 30	38.1 (2.2) 37.1 (3.3)	Iran	Opiate dependence
Rovis et al (2018)	25	167 86	68.5 75.4	Slovenia & Croatia	Heroin dependent Healthy controls
Marulanda and Addington (2014)	25	40 40	59.2 (15.0) 70.6 (11.5)	Canada	High risk for psychosis College student controls
Marx et al (2017)	25	40 31	58.2 (17.2) 80.7 (11.1)	South Africa	Social anxiety disorder psychiatric patients Healthy controls
Kane (2019)	25	20 20	33.0 61.0	Japan	Anorexia nervosa Healthy controls
Sikand et al (2019)	25	60	59.6 (17.0)	India	Women with dissociative disorder

Table 5b. Mean (SD) CD-RISC 10-Item Scores in Groups with Other Psychiatric Disorders

Authors	Scale	Number	Mean (SD)	Location	Comments
Hartley (2012)	10	121	19.6 (8.2)	USA	Student counseling clinic sample
Lee et al (2018)	10	110 92	23.4 (8.2) 33.1 (5.7)	USA	Schizophrenia Healthy controls
Solano et al (2016)	10	575	25.8(9.1)	Brazil	Psychiatric outpatients
Poole et al (2017b)	10	606 3100	24.7(7.3) 31.4(6.4)	Canada	High vs not high anxiety on GAD-7 in primary care patients

Table 5c. Mean (SD) CD-RISC 2 Item Scores in Groups with Other Psychiatric Disorders

Authors	Scale	Number	Mean (SD)	Location	Comments
Draper et al (2014)	2	210	5.9 (2.0)	Australia	Geriatric in- and outpatients; 36% depressed
Durbin (2019)	2	575	5.1	Canada	Homeless mentally ill

Mean CD-RISC scores have been reported as follows: generalized anxiety disorder 62.4 (10.7) (Connor and Davidson, 2003); PTSD 47.8 (19.5), 52.8 (20.4) (Connor and Davidson, 2003), 55.7 (18.4), 53.0 (17.2) (Davidson et al, 2006) and 66.7 (15.8) (Morey et al, 2008).

In a group of Korean patients with GAD or panic mostly, the mean CD-RISC was 53.6 (21.0) (Min et al, 2012). A later study by that group found lower scores in depression and/or anxiety (Min et al, 2013).

Bipolar patients with depression scored lower than euthymic bipolar patients (Soczynska et al, 2017).

In a geriatric group, community subjects had higher resilience scores than did a nursing home cohort, and the lowest scores were found in a third group of psychogeriatric nursing home patients, with depression, psychosis, personality disorder or dementia (Callegari et al, 2016).

In two groups of Australian patients with schizophrenia (mainly), corrected mean scores were 60.3 (18.4) and 63.0 (18.3) (Deane and Andresen, 2006; Andresen et al, 2006). *(Note comment on required scoring corrections in these two publications in citations section below).* A small cohort of recovered or remitted patients with schizophrenia was studied by Torgalsbøen in Norway, and found to have a mean CD-RISC score of 61.3.

Their scores correlated significantly with global function and global relational function. Another study from the same group found a mean score of 57.1 in a small group of patients with schizophrenia (Hansen and Thomassen, 2010). A group of subjects at high risk for developing psychosis scored lower (59.2 (15.0)) than student controls (70.6 (11.5)), and lower RISC scores were associated with more negative symptoms and poorer role function (Mirulanda and Addington (2014). In Greece, Bozikas et al (2016) observed a score of 61.6 in schizophrenia-spectrum patients, which was lower than healthy controls (71.2). A study in the US, using the CD-RISC-10, found lower scores in schizophrenia than in healthy controls (Lee et al, 2018).

In Texas, women with chemical dependency (n=64) have lower CD-RISC scores (63.8 (17.7)) than those without (82.7 (9.0)) (n=64) (Sutherland et al, 2009).

Simon and associates (2009) reported on a cohort of 103 US patients with generalized social anxiety disorder (GSAD), and found the mean CD-RISC to be 48.7 (15.6). Lower scores on SAD (58.2) were also observed by Marx et al (2017), relative to healthy controls (80.7) in a South African cohort.

In 1,265 incarcerated Italian males, Carli et al (2010) noted the mean CD-RISC score to be 65.3 (14.1). In another cohort (n=1,420) of Italian prisoners with significant insomnia, the mean score was 64.3(14.7) (Carli et al, 2011). It is unclear whether these are two separate groups or whether there was some overlap between them. A third report by the group (Carli et al, 2013) evaluated the relationship between resilience (mean score = 65.1(14.1), aggression and impulsivity.

Treatment seeking veterans from OIF and OEF were found to have mean CD-RISC scores of 70.0 (16.5) and 50.9 (15.2) when divided into those without and those with suicidal ideation respectively (Pietrzak et al, 2010).

Green and colleagues (2010) found a mean CD-RISC score of 72.0 (17.5) in 497 veterans who had served since 9/11/2001.

Jafari et al (2010) noted low scores in Iranian males with substance dependence (medians of 53 and 52 in two groups entering treatment).

Brazilian subjects with anxiety and borderline personality disorder had mean (95% CI) scores of 57.7 (53.8-61.5) and 52.1 (44.6-59.6) (Solano and Neto, 2012).

Sixty Indian subjects with dissociative disorder were found to show a relationship between systematic-cognitive style and resilience (Sikand et al, 2019).

Yang et al (2019) reported that resilience and self-esteem fully mediated the relationship between self-control and self-efficacy in Chinese patients with substance use disorder. Mean RISC scores were quite high (87.3).

Medical groups: Studies have been carried out in patients with a variety of medical problems, as shown in Tables 6a-c.

Table 6a. Mean (SD) CD-RISC 25-Item Scores in Groups with Medical Problems

Authors	Scale	Number	Mean (SD)	Location	Diagnostic group
Connor et al (2003)	25	139	71.8 (18.4)	USA	Primary care patients
Sexton et al (2009)	25	40	68.1 (14.3)	USA	Women with infertility
Steinhardt et al (2009)	25	16	83.1 (8.5)	USA	Patients with diabetes
White et al (2010)	25	42	82.2 (9.4)	USA	Spinal cord injury
Loprinzi et al (2011)	25	12 8	73.6(10.1) 78.2(10.5)	USA	Breast cancer survivors in controlled trial
McCauley et al (2013)	25	46 29	81.1(21.1) 82.5(16.7)	USA	Mild TBI Orthopedic non-head injuries
Graham et al (2013)	25	41 26	60.6(24.3) 77.7(18.8)	USA	OIF/OEF Veterans with TBI Controls without TBI
Senders et al (2014)	25	117	73.4 (15.8)	USA	Multiple sclerosis
Cohen et al (2014)	25	14 42	93 (82-93) 87 (76-95)	USA	Pre lung transplant Post lung transplant
Sexton et al (2015)	25	214	76.6(13.6)	USA	Postpartum women
Fernandez et al (2015)	25	120	72.8 (16.0)	USA	End stage liver disease – transplant candidates
Kreutzer et al (2016)	25	160	76.8(17.3)	USA	Mild TBI
Elliott et al (2016)	25	127	67.5(20.1) 70.8(19.6)	USA	TBI +ve OEF/OIF Veterans TBI –ve OIF/OEF Veterans
Hanks et al (2016)	25	67	75.9 (16.9)	USA	Mild TBI
Marwitz et al (2017)	25	192	76.8 (17.2)	USA	TBI
Park et al (2017)	25	154 102	72.2(15.0) 77.3(12.7)	USA	IBS Healthy controls

Jalilianhasanpour et al (2018)	25	50 45	63.2 (16.5) 78.7 (12.1)	USA	Functional neurological d/o Healthy controls
Reid et al (2018)	25	165	75.4 (16.4)	USA	DoD/VA with mTBI
Saban (2018)	25	104	50.3	USA	Women at risk for cardiovascular dis
Muench et al (2018)	25	180	70.5	USA	Primary care patients
Williams (2018)	25	26 27	62.6 80.5	USA	Dissociative/functional neurological disorders and healthy control groups
Sima (2019)	25	158	76.4	USA	TBI
Rapport et al (2019)	25	67	75.9 (16.9)	USA	Mild to severe TBI
Arbour et al (2017)	25	8 5	70 (15) 80 (4)	Canada	Young with mod/severe TBI Mid-age with TBI
McKillop et al (2017)	25	70	65.1 (16.7)	Canada	Chronic back pain patients
Laliberté Durish et al (2018)	25	24 25 26	70.7 68.8 68.9	Canada	Children with single concussion Children with multiple concussion Orthopedic injury control
Shin et al (2012)	25	24 12	89.9(15.8) 89.4(11.9)	Korea	Spinal cord injury males SCI females
Singh et al (2014)	25	90	77.4 HC 55.5 RA 47.7 DEP	India	Geriatric sample RA < HC; RA > DEP
Huang et al (2010)	25	345	74.9 (14.8)	Taiwan	Diabetes
De Robert et al (2010)	25	37 71	77.9 (11.5) 68.8 (12.7)	Argentina	Hypertension (HT) Non-HT control Low resilience with chronic stress increased odds for hypertension
O'Hanlon et al (2011)	25 25	27 27	72.0 (13.5) 70.1 (13.5)	UK	Parents with cleft lip/palate Control parents
West et al (2012)	25	31 36	64.9(15.4) 69.8(16.3)	Australia	Chronic pain Family controls
Guest et al (2016)	25	88	75.6 (14.8)	Australia	Spinal cord injury
Parkin Kullmann et al (2018)	25	250	76 and 80	Australia	Men and women with ALS. M=F, but both were higher than non-ALS control
Kohler & Loh (2016)	25	29	73.7(12.9)	Australia	Geriatric orthopaedic fracture patients
Jones (2019)	25	50 50	76.7 patients 76.6 relatives	Australia	Spinal cord injury and relatives
Edward et al (2019)	25	51	76.8 (15.2) 72.8 (14.6)	Australia	Women recovering from breat cancer followed over 6 months
Solano & Neto (2012)	25	132 100 103	76.3 77.3 75.4	Brazil	Surgical OP pre-anesthesia workup Chronic pain Chronic pain group family controls
Solano et al (2016a)	25	20 24	74.0 88.5	Brazil	Colorectal cancer with depression Cancer without depression
Boell et al (2016)	25	412 191	79.8 (78.5-81.0) 67.5 (64.8-70.2)	Brazil	Type 2 diabetes Chronic kidney disease
Bodde et al (2013)	25	26	73.3(11.7)	Netherlands	Amputees with complex regional pain syndrome type 1.
He et al (2013)	25	410	67.8 (11.7)	China	Burn injury patients
Wang (2019)	25	120	61.7	China	Primary glaucoma
Jiao et al (2016)	25	208	57.6 (15.9)	China	Methadone maintenance patients
Wu et al (2016)	25	213	61.0 (12.3)	China	Women with breast cancer
Liu (2018)	25	147	62.5	China	First ischemic stroke survivors
Li et al (2018)	25	251	70.3	China	Liver cancer patients
Li et al (2018)	25	559	59.5	China	Women with infertility

Zhou et al (2019)	25	66 66	57.7 58.2	China	Breast cancer post surgery
Cao & Liu (2019)	25	513	71.5/70.9	China	Men and women drug users
Bhattarai et al (2017)	25	82	64.8	Nepal	Earthquake survivors with spinal cord injury
Abolghasemi et al (2013)	25	40 40	82.1 (13.0) 59.3 (14.2)	Iran	Fertility clinic male population – fertile Fertility clinic – infertile males
Derakhshanrad et al (2014)	25	63	58.4(15.5)	Iran	Stroke survivors
Derakhshanrad & Piven (2017)	25	25	74.7 (15.8)	Iran	Cognitively oriented stroke survivors
Setareh et al (2017)	25	100 100	65.1 (13.0) 57.5 (17.9)	Iran	Multiple sclerosis < resilient than healthy controls
Alizadeh et al (2018)	25	150	67.5 (17.4)	Iran	Breast cancer patients
Noghan et al (2018)	25	107	70.8 (80.8 & 73.1)	Iran	Total, and compliant and non-compliant hemodialysis patients
Hatamizadeh (2019)	25	61/61	46.2/42.8	Iran	Adolescents with hearing loss
Markovitz et al (2015)	25 25	253 211	68.8 (14.6) 68.0 (11.9)	Belgium	Breast cancer patients Healthy control women
Ristevska-Dimitrovska et al (2015a)	25	218	74.7(17.0)	Macedonia	Breast cancer patients. (see table 4 also)
Franco et al (2019)	25	36	39.9 pre-Rx 49.1 post-Rx	Spain	Post-mastectomy breast cancer patients before and after flow meditation Rx
Fradelos et al (2017)	25	144	65.3(17.9)	Greece	Breast cancer patients
Fradelos et al (2018)	25	152	As above	Greece	RISC score correlated with religiosity
Crosta et al (2018)	25	153	66.8 (12.1) 72.2 (9.8)	Italy	Psoriasis patients Healthy controls
Dubey et al (2015)	25	68	74.4 (12.6)	Switzerland	Cancer patients
Spies and Seedat (2014)	25	95	81.7	South Africa	Women with HIV
Roos et al (2014)	25	142	69.5 (17.2)	South Africa	Pregnant women at antenatal clinic
Kuiper (2019)	25	74	69.6	Netherlands	Spinal cord injury

Table 6b. Mean (SD) CD-RISC 10-Item Scores in Groups with Medical Problems

Authors	Scale	Number	Mean (SD)	Location	Diagnostic group
Wingo et al (2010)	10	792	34.0 (median) (0-40 range)	USA	Primary care/gynecology groups
Dodd (2010)	10	102	32.4(5.4)	USA	Inpatients in rehabilitation post injury
Wrenn et al (2011)	10	233 534	30 (12) median 35 (8) median	USA	PTSD primary care patients Non-PTSD primary care patients
Mascolini (2012)	10	42 20	27.0 31.0	USA	HIV positive older subjects HIV negative older subjects
Bradley et al (2013)	10	971	31.6(7.7)	USA	African-American OB/GYN outpatients
Lukow et al (2015)	10	96	22.0 (8.8)	USA	Mild to severe TBI

Rosenberg et al (2015)	10	1,782	31.4(6.6)	USA	Hematopoetic cell transplantation survivors
Dale et al (2014a)	10	138	28.3(7.8)	USA	HIV+ve women
Dale et al (2014b)	10	85	29.3(7.8)	USA	HIV+ve women
Terrill et al (2016)	10	1862	28.0(7.1)	USA	Long term physical disabilities
Battalio et al (2016)	10	1574	29.0(7.0)	USA	Neurological disabilities – internet sample
Carlsen et al (2017)	10	73	30.4(5.5)	USA	Adolescents with IBD
Koelmel et al (2016)	10	163	26.8(6.2)	USA	Multiple sclerosis
Rosenberg et al (2018)	10	92	29.0 (6.0)	USA	Adolescents with cancer
Wojahn et al (2018)	10	221	33.1	USA	Knee arthroscopy outpatients
Laird et al (2018)	10	469	31.9 (6.4)	USA	Trauma center patients with injury
Young-Wolff et al (2018)	10	355	34 (29,37) median	USA	Antenatal clinic – pregnant women
Gmuca (2019)	10	28	25.3	USA	Children with chronic musc-skel pain
Kreutzer (2019)	10	83 77	21.1 23.4	USA	TBI treatment and control groups
Lau (2019)	10	92	29.0	USA	Teens and young adults with cancer
Langford (2019)	10	382 520 55	25.7 32.2 39.7	USA	Oncology patients with stressed, normative and resilent scale profiles
Tibbett (2019)	10	20	34.9	USA	Spinal cord injury
Toprak (2019)	10	10	25.7	USA	Teenagers with cystic fibrosis
Bibi et al (2018)	10	70	27 & 17	Pakistan	Male and female burn injury patients
Kishore et al (2018)	10	464	27 & 23	India	Pregnant women, non-depressed and depressed
Lu (2019)	10	134	21.9 – 24.5	Colombia	Children with various g-i disorders
Scali et al (2012)	10	238	27 (22-32 1,3Q)	France	Mammography subjects with and without breast cancer
Matzka et al (2016)	10	343	29.3(7.0)	Austria	Cancer patients
Kilic et al (2013)	10	60	29.5(7.2)	Australia	Spinal cord injury
Li et al (2016)	10	231	26.9 (6.6)	China	Pregnant women
Zhao et al (2019)	10	139 men 107 women	31.3 29.8	China	Type 2 diabetes. Men higher than women.
Lee et al (2019)	10	26 depr 78 non depr	26.5 31.6	Taiwan	Lung cancer patients with and without depression
Hayter & Dorstyn (2013)	10	97	25.6(8.1)	Australia	Spina bifida
Black & Dorstyn (2013)	10	196	27.0(7.1)	Australia	Multiple sclerosis
Lyons et al (2016)	10	357	27.0(7.7)	Australia	HIV+ve men
Seib et al (2018)	10	278	30 median	Australia	Women with cancer
Martin et al (2018)	10	244	25.8(8.4)	Australia	Health Links Chronic Care cohort
Markovitz et al (2014)	10 10	101 107	27.6 (5.9) 27.4 (6.8)	Belgium Belgium	Breast cancer patients Control women
Lee & Kim (2018)	10	209	35.9	Korea	Women survivors of breast cancer
Notario-Pacheco et al (2014)	10	191	24.7(10.8)	Spain	Fibromyalgia
Laliberte Durish et al (2018)	10	75	27.6 (6.5)	Canada	Children with concussion or orthopedic injury
McGlone (2010)	10	27	29.3(6.2)	Canada	Epilepsy
Poole et al (2016)	10	3836	30.3(7.1)	Canada	Primary care population
Durish (2019)	10	93	26.1 (6.0)	Canada	Adolescents post concussion

Walsh et al (2018)	10	241	29.0 (7.5)	Ireland	Post treatment for prostate cancer
Sharma et al (2018)	10	131	27.0 (7.0)	Nepal	Chronic pain
Kuiper (2019)	10	74	28.5	Netherlands	Spinal cord injury
Kwan (2018)	10	108	29 median	Singapore	Axial spondyloarthritis
Lim (2019)	10	152	28.1	Singapore	Elders post hip fracture surgery

Table 6c. Mean (SD) CD-RISC 2-Item Scores in Groups with Medical Problems

Authors	Scale	Number	Mean (SD)	Location	Diagnostic group
Vinaccia and Quiceno (2011)	2	40	6.8 (1.8)	Colombia	COPD
Vinaccia et al (2012)	2	40 41	7.5 (1.0) 7.0 (1.4)	Colombia	Chronic kidney disease Rheumatoid arthritis
d.Emden et al (2017)	2	151	6.1(1,5)	Australia	Type 1 diabetes
Sharma et al (2018)	2	140	5.4(1.9)	Nepal	Chronic musculoskeletal pain
Markovitz et al (2014)	2	101 110	6.2 (1.2) 5.9 (1.5)	Belgium Belgium	Cancer patients Control women
Kuiper (2019)	2	74	5.95	Netherlands	Spinal cord injury

A primary care sample in North Carolina was found to have a mean (sd) CD-RISC score of 71.8 (18.4) (Davidson and Connor, 2003). Seven hundred ninety-two mainly African American gynecological or primary care outpatients were studied by Wingo et al (2010) in the US. Using the CD-RISC 10, the authors found a median score of 34 (range 0-40). The same group reported a median score of 30 in 233 PTSD cases among inner city primary care patients who had been exposed to trauma, compared to a median score of 35 in the non-PTSD group, a significant difference (p<0.0001) (Wrenn et al, 2011).

Sexton et al (2009) studied infertility in 40 women, and reported a mean score of 68.1 (14.3), with the scale proving to be reliable and valid, showing convergent validity against other measures, and correlating positively with active coping.

In African American diabetics, the mean resiliency score was 83.1 (8.5) (Steinhardt et al, 2009). Huang (2010) studied 345 diabetic patients in Taiwan, and found the mean CD-RISC score to be 74.9 (14.8).

Forty-two patients with spinal cord injury showed a mean CD-RISC 25 score of 82.2 (9.4) (White et al, 2010).

Inpatients in rehabilitation after injury reported a mean score of 32.4 (5.4) on the CD-RISC 10 (Dodd, 2010).

Shin (2010) studied resilience in Korean patients with cardiovascular disease, validating their new cardiovascular resilience scale against the CD-RISC, with which it correlated.

Twenty-seven subjects with epilepsy had a mean (sd) score of 29.26 (6.23) on the CD-RISC 10 (Jeanette McGlone et al, personal communication, 4/5/10).

Parents with cleft lip or palate did not differ from a matched control group in respect of CD-RISC 25 scores, which were 72.0 and 70.1 respectively (O'Hanlon et al, 2011).

In an Australian sample, patients with chronic pain showed low resilience (64.9) compared to healthy controls (West et al, 2011).

Mascolini (2012) showed that older subjects who were HIV +ve (n=42) had lower RISC-10 scores than those who were HIV –ve (n=20) (p=0.06) and that resilience was lowest in the HIV +ve group with impaired activities of daily living.

West et al (2012) found that chronic pain (n=31) was associated with reduced RISC-25 scores, which were lower than a comparison group (n=36) of relatives without pain. Although the authors state that the RISC scores were "above average," in point of fact both groups (64.9 and 69.8) scored well below the US general population mean. A Brazilian group with chronic pain and their normal control family members scored 77.3 and 75.4 respectively (Solano and Neto, 2012), which were higher than their Australian counterparts. In Nepalese earthquake survivors with spinal cord injury (SCI), those with severe pain had lower resilience than those without (Bhattarai et al, 2017).

A Korean study found high levels of resilience in 36 patients 6 months post SCI (Shin et al, 2012). Paraplegics had higher resilience than quadriplegics in a group of Nepalese earthquake survivors with SCI (Bhattarai et al, 2017).

In a US study of 75 subjects with mild TBI or other orthopedic injuries, mean CD-RISC scores were normal (81 and 82 respectively) (McCauley et al, 2013). However, in a group of veterans with mild TBI, the CD-RISC score was significantly lower than that of controls (60.6 vs. 77.7) (Graham et al, 2013), although it was affected by the 5HTTLPR genotype. A study of those with mild to severe TBI found the mean CD-RISC-10 to be substantially lower (22.0) than that of the US population (Lukow et al, 2015).

Eighty three Korean patients with metastatic cancer who were depressed and anxious according to the HADS scale, showed lower levels of resilience (64.5) compared to those (n=69) without emotional distress (77.1) (Min et al, 2013).

Studies by Dorstyn and colleagues (Hayter & Dorstyn, 2013; Black & Dorstyn, 2013), showed respectively lower scores on the CD-RISC-10 in spina bifida and multiple sclerosis respectively.

A study of amputees with complex regional pain syndrome type 1 showed that those with continuing symptoms were less resilient (median 71, IQR: 64,87) than those who were symptom free (median 81, IQR: 76,83). The authors believed that resilience might be a key factor helping amputees patient to accept and adapt to their new situation (Bodde et al, 2013).

Other studies have investigated subjects with burn injury (He et al, 2013), multiple sclerosis (Senders et al, 2014; Setareh et al, 2017; Arewasikporn et al, 2018), HIV+ve status (Dale et al, 2014; Spies and Seedat, 2014), and a group of patients assessed before or after lung transplantation (Cohen et al, 2014). In the last mentioned, the unusually high CD-RISC scores indicated a highly resilient group, perhaps due to the stringent selection criteria for transplant eligibility. The authors noted that resilience appeared to protect against psychological distress post-operatively. Resilience also protected against pain and fatigue in multiple sclerosis.

Patients with breast cancer in a Macedonian sample were least resilient (56.4) if they had major depression, intermediate with mild depression (68.2) and highest with no depression (79.1) (Ristevska-Dimitrovska et al, 2015a).

Solano et al (2016a) found higher scores in a sample of non-depressed Brazilian patients with colorectal cancer (88.5) as compared to a depressed sample (74.0), and that resilience correlated inversely with depression and positively with measures of hope and independence. In another study from

Brazil, Boell (2016) noted that patients with type 2 diabetes scored within a normal range (79.8), whereas those with chronic kidney disease were lower in resilience (67.5).

Ristevska-Dimitrovska et al (2016b) found that resilience was negatively related to severity of symptoms, side-effects of treatment, and to body image, in Macedonian breast cancer survivors; positive correlations were found relative to quality of life and functioning.

In a sample of Canadian children, RISC score and multiple concussions predicted persistent post-concussive symptoms (Laliberté Durish et al, 2018).

Non-treatment Seeking Trauma Survivors:

Tables 7a-c display these scores.

Table 7a. Mean (SD) CD-RISC 25-Item Scores in Non-Treatment Seeking Trauma Survivors

Authors	Scale	Number	Mean (SD)	Location	Comments
Morey et al (2009)	25	20	83.4 (9.9)	USA	Combat trauma veterans without PTSD
Pietrzak et al (2009a) Pietrzak et al (2009b)	25 25	272 233	73.8 (16.1) 75.5 (1.0 se)	USA USA	National Guard soldiers from OIF/OEF OIF/OEF combat veterans
McTighe (2009)	25	139	75.7 (10.9)	USA	Social workers in the vicinity of terrorist attacks in NYC 9/11/01
New et al (2009)	25	42	80.4 (9.5) 82.0 (17.7) 62.3 (23.1)	USA	Healthy controls Trauma exposed non-PTSD PTSD
Johnson et al (2011)	25	225	71.6 (16.2)	USA	Active duty Marines
Anderson et al (2012a and b)	25	37	75.0	USA	Women who survived intimate partner abuse
Nugent et al (2012)	25	2,915	80.8 (17.1)	USA	Traumatized low income African American sample from primary care and OB-GYN clinics
Elbogen et al (2012)	25	1,388	75.1 (18.3)	USA	Iraq and Afghanistan War veterans
Youssef et al (2013b)	25	178	76.7(15.7)	USA	Iraq/Afghanistan War veterans followed for three years
Wamser-Nanney et al (2017)	25	429	69.8 (17.6)	USA	Students who experienced trauma
Brancu et al (2017)	25	3247	72.6 (18.4)	USA	Afghanistan and Iraq veterans
Daniels et al (2012)	25	70	68.9 (15.3)	Canada	Acute trauma survivors (mainly traffic accidents) seen in hospital ED
Goldstein et al (2013)	25	93	66.9 (16.1)	Canada	Young adults transitioning from welfare
Karairmak et al (2010)	25	246	70.1 (14.1)	Turkey	Earthquake survivors

Bensimon (2012)	25	500 76	67.7 (11.0)	Israel	College students exposed to trauma
Fu et al (2013)	25	2,132	51.9	China	Children ages 6-16 (mean 11.7) who survived earthquake
Trip et al (2018)	25	282	71 (IQ 19)	New Zealand	Nursing student survivors of earhtquake
Ota (2019)	25	99	61.1	Japan	Healthy earthquake survivors

Table 7b. Mean (SD) CD-RISC 10-Item Scores in Non-treatment Seeking Trauma Survivors

Authors	Scale	N	Mean (SD)	Location	Comments
Wang et al (2010)	10	341	26.8 (6.3)	China	Schoolteachers affected by earthquake
Kang et al (2018)	10	227	28.9 (6.7)	China	Ambulance personnel: MD, RN, EMT
Okuyama et al (2018)	10	161	20 median 23 25	Japan	Adolescent survivors of earthquake followed over three years
Bakic & Ajdukovic (2019)	10	224	29.2	Croatia	Community sample of flood survivors
Hammermeister et al (2012)	10	351	28.1 (0.8 SE)	USA	Stryker Battalion combat troops

Table 7c. Mean (SD) CD-RISC 2-Item Scores in Non-treatment Seeking Trauma Survivors

Authors	Scale	N	Mean (SD)	Location	Comments
Nicholls et al (2006)	2	770	5.6 (2.6)	USA	Trauma survivors who contacted Anxiety Disorders Association of America
Irmansyah et al (2010)	2	1,466	4.67	Indonesia	Tsunami survivors
Osofsy et al (2011)	2	452	6.87(2.04)	USA	Deepwater Horizon Oil Spill area residents
Davidson & Lee (2015)	2	240 106 134	6.42(1.3) All 6.69(1.2) F 6.20(7.0) NF	USA	Violent trauma survivors in US general population. Random digit dial sample. Forgivers (F) > Non-forgivers (NF).
Block et al (2019)	2	101 449	4.18 (0.81) 4.38 (0.84)	Australia	Weak or strong attachment to environment in bush fire survivors

CD-RISC-25:

A cohort of National Guard returnees from Iraq and Afghanistan was found to have a mean score of 73.8 (16.1) (Pietrzak et al, 2009a).

The mean CD-RISC scores in 139 clinical social workers living and working in New York City on 9/11/2001 were reported as 75.7 by McTighe (2009).

246 survivors of the Marmara and Bolu earthquakes in Turkey were studied by Karairmak (2010). Their mean CD-RISC 25 score was 70.1 (14.1).

Anderson et al (2012a and b) found that women survivors of intimate partner abuse demonstrated a mean score of 75.0 but that higher scores were associated with lower risk of PTSD, and this applied to four of the five scale factors (i.e., all except for the spirituality factor).

Elbogen et al (2012) reported a mean score of 75.1(18.3) in a national sample of over 1,000 OEF/OIF veterans.

CD-RISC-10:
Hammermeister and colleagues (2012) studied 351 Stryker Battalion combat troops, some of whom had PTSD, and noted a mean CD-RISC 10 score of 28.1, which is below the population mean. (Score is corrected here – authors had used a 1-5 range instead of 0-4). In 341 primary and secondary school teachers who were assessed after the Wenchuan earthquake, the mean CD-RISC 10 score in those without PTSD was 26.8 (6.3 sd) (Wang et al, 2010).

CD-RISC-2:
Irmansyah and colleagues used the CD-RISC 2 to assess resilience in a group of 1,466 Indonesian earthquake/tsunami survivors (2010). The mean and SD scores were given for each item as 2.29 (1.22) and 2.38 (1.31), making the grand mean 4.67 in the displaced persons group. In Australian bush fire survivors, the mean RISC-2 scores were 4.18 and 4.38 ($p<0.05$) in those with weak and strong attachment to the environment (Block et al, 2019). Davidson and Lee (2013) and Osofsky (2005) noted higher RISC-2 scores in survivors of violent trauma and an Oil Rig explosion respectively. In Davidson and Lee, those who forgave the perpetrator of violnet trauma scored higher than did the non-forgivers.

Thus, in summary, scores on the CD-RISC 25 and CD-RISC 10 in this group fall in between those for people with PTSD and those in the general population. The CD-RISC 2 score falls below that of the general population.

Other Populations: Further studies of the CD-RISC have been conducted in a range of populations, some of which have been drawn from psychiatric settings (e.g., VA centers, or from special populations in the community, e.g., ambulance officers, missionaries, etc.). These have been grouped together since they are not defined by psychopathology, trauma type or developmental phase. The mean scores are summarized in Tables 8a-c.

Table 8a. Mean (SD) CD-RISC 25-Item Scores in Other Groups, Those Under Stress and/or Mainly Healthy Subjects

Authors	Scale	Number	Mean (SD)	Location	Diagnostic group
Wilks (2006)	25	205	73.4 (13.30	USA	Alzheimer's Caregivers
Laff et al (2008)	25	241	76.0 (11.0)	USA	Medical interns
Schaeffer et al (2009)	25	48 203	76.5 (12.8) 73.0 (11.9)	USA USA	Missionaries Missionaries
Green et al (2010)	25	497	71.2.(17.5)	USA	Veteran population
Sen et al (2010)	25	740	75.3 (11.9)	USA	Medical interns
Gabriel et al (2011)	25	57	66.5 (13.4)	USA	Nurses
Phillips (2011)	25	79	72.4(13.0)	USA	Unemployed men
Coates (2012)	25	110	80.5	USA	Single low income Black fathers
Kjellstrand & Harper (2012)	25	128	76.0(14.8)	USA	Single mothers
Cox (2012)	25	144	76.8 (12.5) 71.7 (11.7) 73.6 (14.3)	USA	Military couples pre, during and post deployment
Calcote et al (2013)	25	176	76.3	USA	Hazardous waste and emergency response workers
Knows-His-Gun et al (2013)	25	161	78.3(15.4) 77.5(10.3)	USA	Native American Caucasian
Rudow et al (2014)	25	151	83(11.6)	USA	Kidney and liver donors
Gonzalez et al (2016)	25	409	78.1 (10.9)	USA	Distance runners
Lutz et al (2016)	25	656	78 (13)	USA	Air Force and Army recruits
Bezdjian et al (2016)	25	53,672	83.6(11.0)	USA	Air Force recruits
McFarland & Roth (2016)	25	56	68.5(9.4)	USA	Resident MDs on oncology rotation
Baron Nelson et al (2018)	25	19	81.6 (13.0) 87.0 (8.3)	USA	Parents of children with brain tumor: non-intervention and intervention gps
Gupta et al (2017)	25	48	78.0(11.7)	USA	Healthy volunteers for MRI study
Dreer (2019)	25	160	77.3	USA	Service members and their caregivers
Dawson (2019)	25	228	75 median	USA	Men who have sex with other men
Carter (2019)	25	108	73.6	USA	Mothers of children with sickle cell disease
Trip et al (2018)	25	282	71 (19)	N Zealand	Earthquake exposed nursing students
Gillespie et al (2007)	25	735	75.9 (11.0)	Australia	Operating theatre surgical nurses
Gucciardi and Gordon (2008)	25	433	73.4 (11.0)	Australia	Adult cricketers
Gucciardi et al (2011)	25	321	73.2 (10.7)	Australia	Adult cricketers
Gucciardi et al (2011)	25	199	73.0 (10.9)	Australia	Teenage cricketers
Loh and Klug (2012)	25	108	75.0	Australia	Women immigrants
Devilly & Varker (2015)	25	281	77.28(10.4)	Australia	Victorian police officers

Hegney et al (2015)	25	1,743	69.6 – 70.3	Australia	Four groups of nurses, many with mild depression or anxiety
Guo et al (2018)	25	100 197	63.5 (13.3) 58.2 (16.0)	Australia China	Nurses and burnout. RISC score lower in Chinese sample
Anderson et al (2018)	25	131	76.2 (12.3)	Australia	Caregivers of patients with TBI
Baek et al (2010)	25	576	61.0 (13.0)	Korea	Students, nurses, firefighters
Lee et al (2014)	25	552	64.5 (17.0)	Korea	Firefighters
Jeon et al (2017)	25	1794	61.2(13.3)	Korea	Hospital employees sleep survey
Jung et al (2017)	25	42 45	54.5(12.8) 54.0(11.5)	Korea	Hospital employees, mainly nurses. Means given here after correcting for use of 1-5 scoring system
Lee and Williams (2013)	25	206	70.6(14.0)	Koreans in the US	Adults whose parents had alcoholism
Kim et al (2016)	25	169	71.6 (15.6)	Korea	Conscripted Marines
Kim et al (2018)	25	246	64.6	Korea	Young adult volunteers
Yun et al (2019)	25	138	73.3	Korea	Trainee air pilots
Noda et al (2018)	25	220	58.2	Japan	Rescue workers with/without PTSD
Kaye-Kauderer (2019)	25	579	55.1 & 53.1	Japan	Vounteer helpers and non-volunteer medical students post Fukushima disaster
Carli et al (2010)	25	1,265	65.3 (14.1)	Italy	Prisoners
Hosseini and Besharat (2010)	25	139	73.8 (16.0)	Iran	Athletes
Azadmarzabadi et al (2018)	25	100 100 100 100	67 (7) 63 (4) 76 (13) 73 (9)	Iran	Acute stress syndrome from daily stress Acute stress reaction from major trauma No symptoms post daily stress No symptoms after major trauma
Edraki & Rambod (2018)	25	113	65.3	Iran	Parents of children with insulin-dependent diabetes
Ariapooran et al (2018)	25	146	57.9	Iran	Bereaved women
Habibpour (2019)	25	400	66.8	Iran	Parents of children with cancer
Stephenson (2012)	25	50	82.0 (11.2)	US Virgin Islands	Graduates of the Temporary Assistance to Needy Families Program
Hemmings et al (2013)	25	150	73(58,84)	South Africa	Non-TB contacts of family members with TB
Van Breda et al (2015)	25	55 32	77.3(1.7SE) 72.6(2.0)	South Africa	Ironman athletes Recreational athletes
Manzano-Garcia & Calvo (2013)	25	783	79.8(9.8)	Spain	Business owners and entrepreneurs
Serra et al (2018)	25	326	73.9(13.7)	Spain	Dementia patients' caregivers
Yu et al (2009)	25	76	65.4(11.9)	China	Healthy parents
Yu et al (2013a)	25	1,205	60.7(15.6)	China	Refugees
Yu et al (2014)	25	183	57.7 – 59.3	China	Refugees to Hong Kong
Chi et al (2015)	25	645	49.9(15.8)	China	Children (mean age 10.8 – range 8-15) of parents with HIV
Tan et al (2016)	25	3960	63.4 (13.1)	China	New factory employees
Zhang et al (2016)	25	222	56.9(16.9)	China	Parents bereaved of their only child
Lu et al (2017)	25	474	57.9(13.2)	China	Older adults
Du et al (2017)	25	518	66.0	China	Children with HIV+ve parents – mean age 12.0(2.5) years
Zhang et al (2016)	25	516	61.6 (13.0) 60.7 (12.8)	China	Older couples – men and women's scores given
Herbert et al (2013)	25	45	69.4(15.7)	India	Adult offspring of a parent with schizophrenia
Rajan and John (2016)	25	121	65.0(15.9)	India	Parents of children with intellectual disability

Bhat (2017)	25	30 30	60.2 (18.5) 60.4 (16.6)	India	Male and female residents in elderly care homes
Singh et al (2018)	25	272 202	64.6 71.3	India	Male volunteers Female volunteers
Petros et al (2013)	25	196	67.0 (15.8)	England	Healthy adults in a university community
Horvath & Massey (2018)	25	116	75.6 (14.3)	England	Forensic medicine faculty who witnessed trauma to others
Tajanlangit (2014)	25	103	81.8	Philippines	Mental health nurses
Cole (2016)	25	47	84.8	Nine countries	Leaders of faith-based schools
Lim et al (2015)	25	365	84.9(11.2)	Singapore	Older community sample Chinese women, average age 72
Ong et al (2018)	25	285	70.8 (15.1)	Singapore	Caregivers to older adults with mental or physical illness
Jones-Bitton et al (2019)	25	659 Men 292 Women	71.8 69.5	Canada	Farmers – Men signif higher than women
Sarubin et al (2015a)	25	201	73.9(12.0)	Germany	Healthy older women, non-clinical population

Table 8b. Mean (SD) CD-RISC 10-Item Scores in Other Groups, Those Under Stress and/or Mainly Healthy Subjects

Authors	Scale	Number	Mean (SD)	Location	Diagnostic group
Li et al (2012)	10	113	22.6(7.6)	China	Parents under stress: children receiving surgery for congenital disease
Tian et al (2015)	10	575	26.5(6.1)	China	Telephone operators
Ye et al (2017)	10	500	23.0 (5.7)	China	Parents of children with cancer
Li (2019)	10	208	22.6	China	Nursing students with disabled parent
Hao (2019)	10	161	26.5	China	Nursing home residents
Blanco et al (2017)	10	294	26.9(8.3)	Spain	Non-professional caregivers
Gras (2019)	10	3214	26.9	Spain	Young adults
Paulus et al (2012)	10	10 11	30.6(12.3) 31.4(10.0)	USA	Elite athletes Healthy adult controls
Prabhakaran et al (2012)	10	63,290	31.9	USA	Active duty air force personnel
Rosenberg et al (2013)	10	96	30.0(6.0)	USA	Parents of children with cancer
Warren et al (2013)	10	133	33.4(4.0)	USA	Surgeons
Turner (2015)	10	10	36.7	USA	Nurses in hospital following tornado
Gonzalez et al (2016)	10	409	31.1 (5.0)	USA	Distance runners
Houpy et al (2017)	10	117	28.2 (6.4)	USA	Third and fourth year medical students
Richards et al (2017)	10	419	32.3	USA	Physical educators
Simms et al (2017)	10	71,598 6,786	31.8 29.2	USA	Air force personnel Spouses
Iadipaolo et al (2018)	10	55	29.7 (7.3)	USA	Children/adolescents under stress
Brown et al (2018)	10	521	30.7 (5.0)	USA	Nurses
Jeste (2019)	10	96/117	29.8/30.1	USA	Elders in two communities
Gmuca (2019)	10	28	29.9	USA	Parents of children with chronic pain
Purvis (2019)	10	65	31 (28,36)	USA	Neurosciences critical care nurses
Dyrbye (2019)	10	44/44	31.0/30.6	USA	MDs with some burnout symptoms
Lauridsen et al (2017)	10	272	30.3 (5.2)	Denmark	Hospital employees
Gayton and Lovell (2012)	10	146 73	30.1-31.2 27.4	Australia	Experienced paramedics Student paramedics

Slatyer et al (2017)	10	65 26	28.3 (6.0) 27.5 (5.1)	Australia	Nurses enrolled in mindfulness-based stress reduction course
Joyce (2018)	10	56	29.7	Australia	First responders
Joyce (2019)	10	60 83	28.4 28.4	Australia	First responder treatment and control groups in RCT
Tabakakis et al (2019)	10	500	29.7	N Zealand	Nurses
Avrech Bar et al (2017)	10	184	29	Israel	Nurses, OT and PT staff
Scelzo (2019)	10	51 & 29	24.1 23.1	Italy	Ages 51-70 & 90-101 community cohort selected by GPs
Marselle (2019)	10	1081 435	28.6 27.8	United Kingdom	Nature group walkers Controls
Gifford et al (2019)	10	53	32.6	United Kingdom	Women in basic military training
Ang et al (2018)	10	1338	25.9 (6.0)	Singapore	Nurses

Table 8c. Mean (SD) CD-RISC 2-Item Scores in Other Groups, Those Under Stress and/or Mainly Healthy Subjects

Authors	Scale	Number	Mean (SD)	Location	Diagnostic group
Eisenach et al (2014)	2	13	6.9 (1.0)	USA	New anesthesiology residents
Langhinrichsen-Rohling et al (2017)	2	120	4.97(2.59)	USA	Highly stressed, primary care sample referred to behavioral health
Sullivan (2019)	2	59	6.31	USA	Oncology nurses
Stevens et al (2010)	2	633	6.84 (3.82)	Australia	Ambulance officers
Gianesini (2012)	2	324	6.25 (1.63)	Switzerland	Parents of young schoolchildren

Two hundred and five Alzheimer’s disease caregivers were studied by Wilks (2006), and their mean CD-RISC was 73.4 (13.3). A second study of dementia caregivers by Lavretsky et al (2010) gave lower scores ranging between 60 and 66.

In a study of African Americans, Brown (2008) reported a mean score of 78.1 (12.1). Another population of African American diabetics scored a mean of 83.8 (8.5) (Steinhardt et al, 2009). In a third study of African Americans, Coates (2012) reported a mean score of 80.5 and mean (sd) item score of 3.22 (0.56) in 110 single, low-income fathers.

A study of Australian surgical nurses reported the mean CD-RISC to be 75.9 (11.0) (Gillespie et al, 2007). In a large population cohort of Americans over age 60, the mean score was 75.7 (13.0) (Lamond et al, 2008). Two Chinese cohorts of parents of autistic children (PAC, n=76) and of non-autistic children (PNC, n=329) resulted in mean (sd) scores of 65.4 (11.9) and 71.0

(11.3) (Chen Yu, personal communication, 5/26/09). 143 healthy Korean volunteers were studied by Ha et al (2009) and a mean score of 66.8 (12.7) was noted.

US missionaries in Europe (n=48) and Africa (n=203) yielded mean (sd) scores of 76.5 (12.8) and 73.0 (11.9) respectively (Frauke Schaefer, personal communication, 5/22/09).

Gucciardi and colleagues (2008, 2011) examined three populations of adult or teenaged Australian cricketers and reported the mean CD-RISC as 73 in all cases. In one report (Gucciardi et al 2011), mean scores for the CD-RISC 25 were 73.2 (10.7) and 73.0 (10.9) in 321 adult and 199 adolescent Australian cricketers respectively. For the CD-RISC 10, the mean score in adults was 29.51 (4.88). An Iranian study of athletes from different sports (volleyball, basketball and football being most common) showed a similar mean CD-RISC score (73.8 (16.0)) to that of the cricketers (Hosseini and Besharat, 2010).

A study of medical interns at Yale found a mean RISC score of 76.0 (11.0). Although total CD-RISC score and the factor scales failed to predict depression among interns, two items relating to challenge were associated with risk (Laff, 2008). A subsequent study in another group of interns by Sen et al (2010) found a mean CD-RISC score of 75.3 (11.9) in a US cohort of 740 medical interns.

Baek et al (2010) studied the CD-RISC in a non-randomly selected young (average age = 27.4) Korean population of 576 students, nurses and firefighters. The mean score was 61.2 (13.0). A subsequent study of Korean firefighters found a mean score of 64.5 (17.0) (Lee et al, 2014).

In two military samples of active duty Marines and veterans of OIF/OEF, the mean CD-RISC scores were respectively 71.6 (16.2) and 67.0 (17.6) (Johnson et al, 2011). The mean scores in military couples before, during and after deployment were comparable (71.7 to 76.8) (Cox, 2012).

In 57 US nurses, Gabriel et al (2011) reported mean score of 66.5 (13.4). *[Note that in their paper, the authors reported a mean score of 91.5, due to scoring each item on a 1-5 scale, rather than the 0-4 metric].*

A group of 128 upper- or middle-income single mothers was found to score 76.0 (14.8) (Kjellstrand and Harper 2012). The five highest scoring items reflected qualities of personal competence and tenacity.

113 parents whose children were undergoing surgery scored 22.2(7.6) on the CD-RISC 10 in a Chinese sample (Li et al, 2012).

Gayton and Lovell (2012) observed a higher CD-RISC score in paramedics with several years' experience compared to student paramedics.

Lee and Williams (2013) studied 206 Koreans living in the US, most of whom were students; 89% were born in Korea and 11% in the US. Mean CD-RISC score was 70.6 (14.0).

Parents of children with cancer in the USA were found to score close to the population mean, but those with lower scores were more at risk for unfavorable outcomes (Rosenberg et al, 2013).

A group of surgeons was found to score 33.4 (4.0) on the CD-RISC-10, which is no different from the score of post-college educated subjects in a US community sample (Warren et al, 2013). US medical students scored slightly lower on the CD-RISC-10 than national norms, but fourth year students, men and those not burned-out scored higher than their counterparts (Houpy et al, 2017).

Summary: These results lead to the conclusion that psychiatrically healthy subjects score higher on the CD-RISC than do those with a range of psychiatric illnesses, or even than a general sample of primary care patients. In the US, two population surveys of the 25- and/or 10-item scales suggest that the mean item score ranges from 3.17-3.21, which translates into a 25-item score around 79-81, or 31-32 for the CD-RISC 10. Studies of healthy Chinese, Japanese and Korean and other non-US adults showed substantially lower scores, suggesting that ethno-cultural factors need to be taken into account when measuring resiliency. It is also possible that response-set bias may exist, leading some populations to under- or over-report symptoms. Interpretation of mean population scores is confounded also by such considerations as the age of subjects, and whether or not the sample has been enriched by special features, e.g., medical clinic samples, exposure to severe trauma (Bitsika et al, 2010). In a varied group of adolescents, students and young adults, the CD-RISC 25 scores cluster between the mid-50s to low 70s. Studies in the US have tended to report higher scores than in other countries.

For the CD-RISC 2, two US population studies have yielded mean scores of 6.94 in the general population (Vaishnavi et al, 2007) and 5.6 (2.6) in a non-PTSD sample who had contacted the Anxiety Disorders Association of America (ADAA), a major national anxiety disorders advocacy organization, and a significantly lower score of 4.6 (2.6) in those with PTSD who contacted the ADAA. As a self-selected sample of enquirers to a support organization, it is likely that the level of resilience in this group may have been lower. In a Portuguese general community convenience sample, the mean score was 6.50 (1.23) (Joana Faria, personal communication, 7/22/2010). A representative state sample of Australian ambulance officers resulted in a CD-RISC 2 score of 6.84 (3.82) (Stevens et al, 2010).

The material in Tables 1-8 is presented according to the nature of the sample and sub-grouped for the three versions of the CD-RISC. For those who wish to see the entire scores from all studies with the 10- and 2-item versions of the scale, these follow in Tables 9 and 10 respectively.

Summary Scores: CD-RISC-10

Table 9. Mean (SD) CD-RISC 10-Item Summary Scores

Authors	Scale	Number	Mean (SD)	Location	Comments
Davidson (2003)	10	458	32.1 (5.8)	USA	National random digit dial sample
Campbell-Sills et al (2007)	10	131	27.2 (5.8)	USA	College undergraduates
Campbell-Sills et al (2008)	10	764	31.8 (5.4)	USA	Community random digit dial sample in Memphis
Wingo et al (2010)	10	792	34.0 (median) (0-40 range)	USA	Primary care/gynecology groups
Dodd (2010)	10	102	32.4(5.4)	USA	Inpatients in rehabilitation post injury
Grattan et al (2011)	10 10 10 10	71 23 47 47	29.1(6.1) 29.9(5.9) 30.0(6.5) 28.5(5.5)	USA USA USA USA	Deepwater Horizon Oil Spill
Wrenn et al (2011)	10	233 534	30 (12) median 35 (8) median	USA	PTSD primary care patients Non-PTSD primary care patients
Christensen (2011)	10	41	31.4(5.8)	USA	Inpatients with traumatic injury
Hartley (2012)	10	605	30.1(5.3)	USA	Normative student sample
Melvin et al (2012)	10	60	31.0 (6.5)	USA	Combat veteran couples
Goins et al (2012)	10	160	33.5 (6.2)	USA	Federally recognized Native American tribe

Hartley (2012)	10	121	19.6(8.2)	USA	Student counseling clinic sample
Mascolini (2012)	10	42 20	27.0 31.0	USA	HIV positive older subjects HIV negative older subjects
Paulus et al (2012)	10	10 11	30.6(12.3) 31.4(10.0)	USA	Elite athletes Healthy adult controls
Hammermeister et al (2012)	10	351	28.1 (0.88)	USA	Stryker Battalion combat troops
Prabhakaran et al (2012)	10	63,290	31.9	USA	Active duty Air Force personnel
Rosenberg et al (2013)	10	96	30.0(6.0)	USA	Parents of children with cancer
Bradley et al (2013)	10	971	31.6(7.7)	USA	African-American OB-GYN outpatients
Warren et al (2013)	10	133	33.4(4.0)	USA	Surgeons
Dale et al (2014a)	10	138	28.8(7.8)	USA	HIV+ve women
Dale et al (2014b)	10	85	29.3(7.8)	USA	HIV +ve women
McCanlies et al (2014)	10	114	29.9 (6.3)	USA	Police officers post Hurricane Katrina
Rainey et al (2014)	10	110	31.3 (not given)	USA	Hospitalized subjects with traumatic injury
Green et al (2014)	10	1,090	30.5 (6.6)	USA	Community sample of military veterans
Lukow et al (2015)	10	96	22.0 (8.8)	USA	Mild to severe TBI
Rosenberg et al (2015)	10	1,782	31.4(6.6)	USA	Hematopoietic cell transplantation patients
Turner (2015)	10	10	36.7	USA	Nurses responding to tornado casualties
Gonzalez et al (2016)	10	409	31.1 (5.0)	USA	Distance runners
Battalio et al (2016)	10	1574	29.0(7.0)	USA	Neurological disability
Terrill et al (2016)	10	1862	28.0(7.1)	USA	Long term physical disabilities
Wingo et al (2017)	10	246	23.6(7.8)	USA	Veterans with PTSD and depression
Carlsen et al (2017)	10	73	30.4(5.5)	USA	Adolescents with IBD
Jones et al (2017)	10	39	33.5(18.4) 24.1 and 26.4	USA	Juvenile male controls Juvenile male sexual offenders
Koelmel et al (2016)	10	163	26,8(6.2)	USA	Multiple sclerosis
Richards et al (2017)	10	419	32.3	USA	Physical educators
Lee et al (2018)	10	110 92	23.4 (8.2) 33.1 (5.7)	USA	Schizophrenia Healthy controls
Brown et al (2018)	10	521	30.7 (5.0)	USA	Nurses
Rosenberg et al (2018)	10	92	29 (6.0)	USA	Adolescents with cancer and controls
Young-Wolff et al (2018)	10	355	34 median (IQ 29,37)	USA	Antenatal clinic patients
Laird et al (2018)	10	469	31.9 (6.4)	USA	Trauma center patients with physical injury
Iadipaolo et al (2018)	10	55	29.7 (7.3)	USA	Children under stress
Lekan et al (2018)	10	100	28.6	USA	Nursing students

Gmuca (2019)	10	28 28	25.3 children 29.9 parents	USA	Children with chronic musculoskeletal pain and their parents
Klibert (2019)	10	48	31.6 & 28.1	USA	Undergrad students treatment and control groups – post study only
Kreutzer (2019)	10	83 77	21.1 23.4	USA	TBI treatment and control groups
Lau (2019)	10	48 44	29 PRISM trt 28 Trt as usual	USA	Teens and young adults with cancer
Simms et al (2019)	10	71,598 6,786	31.8 29.2	USA	Air force personnel Spouses
Jeste (2019)	10	96, 117	29.8/30.1	USA	Retirement and general communities
Purvis (2019)	10	65	31 (28,36) median	USA	Critical care nurses
Akeman (2019)	10	126/122	29.0 & 29.0	USA	College students with depression
Tibbett (2019)	10	20	34.9	USA	Spinal cord injury
Dyrbye (2019)	10	44/44	31.0/30.6	USA	Mayo Clinic MDs with burnout
Taylor (2019)	10	123	Not given	USA	Children ages 10-12
Langford (2019)	10	382 520 55	25.7 32.2 39.7	USA	Oncology patients in chemotherapy. Groups of stressed, normative and resilient from factor analysis
Reyes (2019)	10	188	30.1	USA	Filipino-American women with and without PTSD
Shlomi (2010)	10	220	28.0 (5.7)	Canada	Psychology students
McGlone (2010)	10	27	29.3 (6.2)	Canada	Epilepsy
Rahimi et al (2014)	10	155	28.8(4.4) Female 31.2(5.2) Male	Canada	Medical students
Poole et al (2017a)	10	3413 277	31.0 22.3(7.6)	Canada	Prim care non-depressed Prim care depressed
Poole et al (2017b)	10	3802	30.3(7.0)	Canada	11 primary care practices Calgary
Levasseur et al (2017)	10	4541	31.0 Women 32.0 Men	Canada	Community sample of elders 60+ years of age
Thompson (2018)	10	188	18.5 Women 21.6 Men	Canada	Medical students
Laliberte Durish et al (2018)	10	75	27.6 (6.5)	Canada	Children with concussion or orthopedic injury
Durish (2019)	10	93	26.1	Canada	Adolescents post concussion
Hebert (2019)	10	784	26.6	Canada	College women
Wang et al (2010)	10	341	24.8(7.4) 20.8(6.3) 26.8(6.3)	China	Earthquake survivors – whole group PTSD group Non-PTSD controls
Wang et al (2010)	10	341	26.8 (6.3)	China	Schoolteachers affected by earthquake
Li et al (2012)	10	113	22.6(7.6)	China	Parents under stress: children receiving surgery for congenital disease
Duan et al (2015)	10	95	25,.5 (4.9)	China	University students with PTSD and PT growth
Tian et al (2015)	10	575	26.5(6.1)	China	Telephone operators
Wu et al (2015)	10	318	24.8(7.5)	China	Earthquake survivors – corrected values given here
Li et al (2016)	10	231	26.9 (6.6)	China	Pregnant women
Ye at al (2017)	10	460	23.2	China	Parents of children with cancer
Kang et al (2018)	10	227	28.9 (6.7)	China	Ambulance personnel: MDs, RNs and EMTs
Skrzypiec et al (2018)	10	2050	29.3 (7.3)	China	Schoolchildren ages 10-15
Chow et al (2018)	10	678	24.0 (5.7)	China/Hong Kong	Student nurses

Li et al (2018)	10	108	27.6 (7.4)	China	Breast cancer survivors and caregivers
Zhao et al (2018)	10	732	Not given in abstract	China	Resilience score inversely correlated with menopausal symptoms.
Meng et al (2019)	10	1238	27.6 (8.0) Men 28.6 (7.4) Women	China	Elders age 60 and above
Hao (2019)	10	161	26.5	China	Nursing home residents
Li (2019)	10	208	22.6	China	Nursing students with disabled parent
Zhao et al (2019)	10	139 107	31.3 Men 29.8 Women	China	Type 2 diabetes
Cheng (2019)	10	293 2230	16.2 26.3	China	Depressed Healthy undergraduates
Lee et al (2019)	10	26 depr 78 ctrl	26.5 31.6	Taiwan	Lung cancer patients with/without depression
Matzka et al (2016)	10	343	29.3(7.0)	Austria	Cancer patients
Kilic et al (2013)	10	60	29.5(7.2)	Australia	Spinal cord injury
Gayton and Lovell (2012)	10	146 73	30.1-31.2 27.4	Australia	Experienced paramedics Student paramedics
Black & Dorstyn (2013)	10	196	27.0(7.1)	Australia	Multiple sclerosis
Hayter & Dorstyn (2013)	10	97	25.6(8.0)	Australia	Spina bifida
Lyons et al (2016)	10	357	27.0 (7.7)	Australia	HIV+ve gay men
Chamberlain et al (2016)	10	240	32.0 (5.7)	Australia	Third year nursing students
Slatyer et al (2017)	10	65 26	28.3 (6.0) 27.5 (5.1)	Australia	Nurses in clinical trial
Seib et al (2018)	10	278	30 median	Australia	Women with cancer
Skrzypiec (2018)	10	2050	29.3 (7.3)	Austr/China	Chinese schoolchildren ages 10-15
Ehrich et al (2017)	10	288	26.1 (6.0)	Australia	University students
Joyce (2018)	10	56	29.7	Australia	First responders
Martin et al (2018)	10	244	25.9 (8.4)	Australia	Health Links Chronic Care patient cohort
Joyce (2019)	10	60 83	28.4 28.4	Australia	First responders – treatment and control groups
Tabakakis et al (2019)	10	500	29.7	New Zealand	Nurses
Davidson et al (2008)	10	329	20.1 19.9	International International	PTSD before drug treatment PTSD before receiving placebo
Klasen et al (2010)	10	330	22.7 (8.3)	Uganda	Former child soldiers aged 11-17
Aloba et al (2016)	10	449	26.7	Nigeria	Student nurses
Lopes and Martins (2011)	10	463	29.1 (5.5)	Brazil	Adult sample
Solano et al (2016)	10	575	25.8 (9.1)	Brazil	Medical and psychiatric patients
Lim et al (2011)	10	190	27.88	Singapore	Adolescents mean age 12.8 (range 12-16)
Ang et al (2018)	10	1338	25.9 (6.0)	Singapore	Nurses
Kwan (2018)	10	108	29 median	Singapore	Axial spondyloarthritis
Lim (2019)	10	152	28.1	Singapore	Older adults post hip fracture surgery

Deen et al (2017)	10	5	16.8 and 22.4	Malaysia	Elite squash players tested before and after therapy
Notario-Pacheco et al (2011)	10	681	27.4 (6.4)	Spain	University first year students mean age 20.1 (18-30)
Montero-Marin et al (2014)	10	314	27.8 (6.7)	Spain	Dental students
Notario-Pacheco et al (2014)	10	191	24.7(10.8)	Spain	Fibromyalgia patients
Rodriguez-Rey et al (2015)	10	620	28.4 (6.8)	Spain	Mixed sample of medical patients, parents of children with medical/psych problems and general population
Scali et al (2012)	10	238	27 (22-32 1,3Q)	France	Mammography subjects with and without breast cancer
Glück et al (2013)	10	84	25.9 (6.7) PTSD 31.1 (6.1) Control	Austria	World War II survivors
Markovitz et al (2014)	10	254 101 107	25.7 (6.8) 27.6 (5.9) 27.4 (6.8)	Netherlands Belgium Belgium	Students Breast cancer patients Control women
DiFabio & Saklofske (2014)	10	164	24.8(6.2)	Italy	High school students
Scelzo (2019)	10	51 & 29	24.1 & 23.1	Italy	GP selected cohort ages 51-75 and 90-101
Okuyama et al (2014)	10	1,973	20.5(0.2 SE)	Japan	Adolescent survivors of Great East Japan Earthquake
Okuyama et al (2018)	10	161	20 – 23 – 25	Japan	Adolescents followed over three years post-earthquake
Lee et al (2016)	10	1094	25.8 (8.0)	Korea	College students
Shin et al (2018)	10	962	25.1 – 25.7	Korea	Chemical workers exposed to different levels of a toxin
Tsigkaropoulou et al (2018)	10	546	23.1 (8.7)	Greece	Mixed sample of psychiatric patients and healthy controls
Lee & Kim (2018)	10	209	35.9	Korea	Women who survived breast caancer
Antunez et al (2015)	10	1,922	29.0 (0.1)	Spain	Adults in the community
Blanco et al (2017)	10	294	26.9(8.3)	Spain	Non-professional caregivers
Gras (2019)	10	3214	26.9	Spain	Young adults
Farkas & Orosz (2015)	10	465	28.0 (0.6)	Hungary	Students
Gabor et al (2018)	10	343	28.2	Hungary	High school and university students
Metel (2019)	10	2614	34.8	Poland	General population young adults
Schäfer et al (2015)	10	191	31.3 (4.8)	Germany	Male soldiers
Mathad et al (2017)	10	194	26.3(6.3)	India	Nursing students
Kishore et al (2018)	10	437 27	27 (24,30) 23 (16,30)	India	Pregnant women non-depressed Pregnant women depressed
Lauridsen et al (2017)	10	272	30.3 (5.2)	Denmark	Hospital employees
Moffett & Bartram (2017)	10	105	27	England	First year veterinary students
Marselle (2019)	10	1081 435	28.6 27.8	England	Nature group walkers Non-walkers
Gifford et al (2019)	10	53	32.6	England/UK	Women in basic military training
Avrech Bar et al (2017)	10	184	29 [median]	Israel	Nurses, OT and PT staff

Bibi et al (2018)	10	70	27 & 17	Pakistan	Male and female burn injury patients
Wetherall et al (2018)	10	2534 498 403	29.6 25.4 23.4	Scotland	Young adults in Scotland national sample of healthy controls, suicide ideators and suicide attempters
Walsh et al (2018)	10	241	29.0 (7.5)	Ireland	Men one year post treatment for prostate cancer
Lu (2019)	10	134	21.9 – 24.5	Colombia	Children with various g-i disorders
Sharma et al (2018)	10	131	27.0 (7.0)	Nepal	Chronic pain
Bakic & Ajdukovic (2019)	10	29.2	224	Croatia	Flood survivors
Tolentino & Suba (2019)	10	72	32.0	Philippines	7th and 8th grade school pupils
Tourunen et al (2019)	10	958	31.1	Finland	Community sample of elders in city of Jyvaskyla

Summary Scores of All Studies: CD-RISC-2

Table 10. Mean (SD) CD-RISC 2-Item Summary Scores

Authors	Scale	Number	Mean (SD)	Location	Comments
Nicholls et al (2006)	2	770	5.6 (2.6)	USA	Trauma survivors who contacted Anxiety Disorders Association of America
Vaishnavi et al (2008)	2	458	6.91(1.5)	USA	National random digit dial sample
Campbell-Sills et al (2008)	2	764	6.82(1.33)	USA	Community sample random digit dial in Memphis
Davidson and Lee (2015)	2	106 134	6.7 (1.3) 6.2 (1.5)	USA	National RDD trauma survivor sample. Those who forgave perpetrators of violent trauma vs those who did not.
Osofsy et al (2011)	2	452	6.87(2.04)	USA	Deepwater Horizon Oil Spill area residents
Osofsky et al (2018)	2	736 225	4.78(1.85) 5.18(2.19)	USA	Deepwater Horizon – before and after health care provision
Eisenach et al (2014)	2	13	6.9 (1.0)	USA	New anesthesiology residents
Langhinrichsen-Rohling et al (2017)	2	120	4.97(2.59)	USA	Primary care sample referred to behavioral health. Highly stressed.
Monrad et al (2018)	2	310	6.4 – 6.5	USA	Three medical student cohorts
Sullivan (2019)	2	59	6.31	USA	Nurses with compassion fatigue
Davidson et al (2008)	2	329	4.53 4.56	International International	PTSD before receiving drug PTSD before receiving placebo
Irmansyah et al (2010)	2	1,466	4.67	Indonesia	Tsunami survivors
Gianesini (2012)	2	324	6.25(1.63)	Switzerland	Parents of schoolchildren aged 3-10
Stevens et al (2010)	2	633	6.84 (3.82)	Australia	Ambulance officers
Draper et al (2014)	2	210	5.9 (2.0)	Australia	Geriatric psychiatry in- and outpatients
D'Emden et al (2017)	2	151	6.1(1.5)	Australia	Type 1 diabetes

Block et al (2019)	2	101 449	4.18 (0.81) 4.38 (0.84)	Australia	Bush fire survivors rated for weak or strong attachment to environmemt
Faria et al (2011)	2	421	6.50 (1.23)	Portugal	Community sample Lisbon
Lim et al (2011)	2	190	5.76	Singapore	Adolescents mean age 12.8 (range 12-16)
Vinaccia and Quiceno (2011)	2	40	6.8 (1.8)	Colombia	COPD
Vinaccia et al (2012)	2	40 41	7.5 (1.0) 7.0 (1.4)	Colombia	Chronic renal disease Rheumatoid arthritis
Markovitz et al (2014)	2	254 101 110	5.6 (1.4) 6.2 (1.2) 5.9 (1.5)	Netherlands Belgium Belgium	Dutch students Breast cancer patients Control women
Lu et al (2016)	2	218	6.46(1.72)	Taiwan	Student athletes
Ni et al (2015)	2	10,997	5.03(1.37)	China	Hong Kong general population
Jeong et al (2015)	2	222	 6.0 (1.2) 5.1 (1.5) 4.4 (1.5)	Korea	Firefighters and rescue workers Controls PTSD or MDD alone PTSD and MDD
Harrer et al (2018)	2	75 76	4.80 (1.72) 4.79 (1.87)	Germany	Students pre-treatment Student controls
Heo et al (2018)	2	1866	5.6 (1.7)	Korea	School system adolescent sample
Rapacciuolo et al (2016)	2	571	5.87(1.7)	Italy	Older community sample in Naples
Lewis et al (2017)	2	697	5.8 (1.7)	England	Subthreshold depression primary care
Sharma et al (2018)	2	131 140	5.2 (1.7) 5.4 (1.9)	Nepal	Chronic pain i Chronic pain ii
Sørensen (2018)	2	925	6.72 (1.15)	Norway	General population sample
Tsigkaropoulou et al (2018)	2	546	5.37 (1.96)	Greece	Mixed sample of psychiatric patients and healthy controls
Durbin (2019)	2	575	5.1 5.6	Canada	Homeless with mental illness pre and post treatment

Factor Analysis

Factor analysis Reports will be presented for the RISC-25 and RISC-10 as follows.

CD-RISC-25

In the first report describing the scale in an adult cohort (n =577) representative of the US population, Connor and Davidson (2003) derived five factors, the strongest of which captured aspects of persistence/tenacity and strong sense of self-efficacy. Other factors with lower eigenvalues (ranging from 1.563 to 1.073), corresponded to emotional and cognitive control under pressure (factor 2); adaptability/ability to bounce back (factor 3); control/meaning (factor 4); meaning (factor 5). Factors 4 and 5 are composed of only 3 and 2 items respectively and may be less robust.

Lamond and colleagues (2008) examined a cohort of 1,395 older Americans, and derived four factors from the data: personal control/goal orientation; adaptation and tolerance of negative affect; leadership and trust in instincts; spiritual coping.

In a study of 787 South African adolescents, Jørgensen and Seedat (2008) were unable to confirm the original five-factor solution, and proposed a two- or three-factor solution, wherein tenacity was quite robust. Ethnicity appeared to influence their findings, and it may be of importance that the English language version of the CD-RISC was given to subjects for whom English was often a second language.

A report in 323 Iranian university students who completed the CD-RISC generated four factors, which the author considered to be relatively similar to those derived by Connor and Davidson (2003), termed as achievement motivation, self-confidence, tenacity and adaptability (Khoshouei, 2009).

A Chinese study of the CD-RISC by Yu and Zhang (2007) in 560 residents of Guangdong and Beijing, found three factors to best account for their findings: tenacity, strength and optimism. Of these, tenacity (hardiness) explained the greatest variance, similar to Connor and Davidson's original findings. Yu and Zhang also make some important observations on the different valence that is given to personal competence/control and spirituality in the United States, compared to their lesser salience in Chinese culture, while harmony was seen as being of greater importance. The ability to get along well with others and to empathize with their needs, feelings etc., may deserve more attention with respect to resilience. In this context, perhaps altruism is an important missing element in current measures of resilience.

Gillespie et al (2007) assessed 735 Australian operating room surgical nurses, and largely replicated the Connor and Davidson 5 factor structure, albeit with differences in item loadings.

Catalano et al (2008) found a five-factor solution to be the most satisfactory interpretation of their results in a Canadian sample of 274 spinal cord injury patients.

A Japanese study extracted five factors by exploratory factor analysis, which differed somewhat from the five factors reported by Connor and Davidson, and then in a confirmatory factor analysis to test a one-dimensional structure, the authors confirmed goodness of fit to the data (Ito et al, 2009). A contrary finding has been reported by Burns and Anstey (2010) in a sample of 1,775 Australian community members. The authors were unable to establish goodness of fit in a confirmatory factor analysis of the original Connor and Davidson model, leading them to conclude that the CD-RISC reflected a multidimensional measure of resilience. They therefore undertook parallel analysis to guide a further exploratory factor analysis, and ultimately retained 22 items that they regarded as a one-dimensional measure. They also found that their derived measure was in some ways superior to the CD-RISC 10, which was also tested. Slightly different findings emerged, however, in a later study by Gucciardi et al (2011).

In veterans of OIF/OEF (n=272), exploratory factor analysis found five factors, which the authors labeled as hardiness, purpose/control, leadership, effort and spiritual (Pietrzak et al, 2009). Higher scores on the purpose/control factor were associated with lower risk of suicidal ideation.

In a study of 40 women with infertility problems, Sexton et al (2009) reported five factors, labeled emotional/interpersonal stability, self-efficacy, adaptability, spirituality and confident decision-making. Her view is that the factor analysis obtained most closely resembled the factor structure reported by Lamond. However, the numbers here are on the small side for a factor analysis.

Garzia-Izquierdo et al (2009) observed that the original CD-RISC factors of personal competence and positive acceptance of change negatively predicted emotional exhaustion in a group of 311 Spanish workers. (The other three factors were not examined).

Varying levels of homogeneity for each factor-generated subscale of the CD-RISC was reported by McTighe (2009), with Cronbach's α ranging from 0.67-0.85.

Singh and Yu (2010) examined 256 Indian students (mean age 22.7, range 17-27), and found a four-factor solution by exploratory factor analysis: hardiness, optimism, resourcefulness and purpose. Scale homogeneity was established with Cronbach's α being 0.89 for the total scale and 0.80, 0.75, 0.74 and 0.69 for factors 1 through 4.

Jowkar et al (2010) compared Iranian versions of the CD-RISC and the Resilience Scale for Adults (RSA) in a student population. A factor analysis upheld the original structure of the RSA, but not of the CD-RISC, for which the authors failed to show a clear pattern. However, the Cronbach α was high for the full CD-RISC and for factor 1, but lower for factors 2-4.

Four factors were obtained by Bitsika et al (2010), which represented challenge-seeking/purpose, decisiveness, spirituality and self-confidence/optimism. Factors 1, 2 and 4 showed inverse relationships with depression and anxiety, with factor 4 (self-confidence) bearing the strongest relationship to both depression and anxiety, and factor 2 (decisiveness/solution-focused) being also relevant to anxiety risk.

A three-factor solution was generated by Karairmak (2010) in her sample of Turkish earthquake survivors, these being labeled as tenacity/personal competence, tolerance of negative affect and spirituality. Cronbach's α was 0.89 for the full scale and 0.93, 0.79 and 0.50 for the three factors, the last factor consisting of only three items.

In their study of adolescents, Yu et al (2011) replicated by confirmatory factor analysis the original five factors of Connor and Davidson (2003), and showed a Cronbach's α coefficient of 0.89 for the full scale, and 0.83, 0.66, 0.66, 0.58 and 0.50 for factors 1 through 5 respectively.

In a Korean population, the authors (Baek et al, 2010) obtained five factors, which differed to some degree from those obtained by Connor and Davidson. These factors were termed hardiness, tolerance of negative affect, optimism, social support and spirituality. As with others (Yu and Zhang, 2007), the authors suggested that the original CD-RISC spirituality factor may be heavily influenced by Western beliefs, and apply less to other belief systems. Baek et al found high Cronbach α's for the item-subtotal analysis (0.93), but varying levels for each factor (0.87, 0.87, 0.58, 0.59 and 0.25 for factors 1-5). Another study from Korea found a Cronbach's α = 0.82 (Jung et al, 2017).

Among 520 Australian cricketers (Gucciardi et al, 2011), confirmatory factor analysis and item level analyses confirmed superiority of the 10-item over the original five factor 25-item CD-RISC. Using measurement invariance analysis, the authors demonstrated configural, metric and partial scalar invariance for the 10-item scale when comparing adolescent (mean age 16.9) and adult (mean age 26.1) cricketers.

In two samples of Spanish business owners, three factors were derived and confirmed, corresponding to hardiness, resourcefulness and optimism (Manzano-Garcia and Calvo, 2012).

Young children between ages 6 and 16 who survived an earthquake in China were assessed with the CD-RISC, for which two factors emerged: rational/positive thinking and self-awareness (Fu et al, 2013).

Among Canadian subjects with spinal cord injury (SCI), the original 5-factors were tested and found to fit the data reasonably well, with good reliability of the five scales. The authors concluded that the 5-factor structure observed in the general population was replicated in the SCI sample (Fujikawa et al, 2013).

A study of 1,981 veterans of OIF and OEF in Iraq and Afghanistan was studied by Green et al (2014), who found that a two-factor model provided best fit to the data, these factors being labeled adaptability and self-efficacy. The adaptability factor emerged as the factor which most closely corresponded to the usual notion of resilience, being associated with protection against psychopathology following exposure to trauma, unlike the other factor. The authors noted that 6 of the 8 adaptability items appear in the CD-RISC-10, and the two items in the CD-RISC-2 also contain items from this factor. A later report (Mehta et al, 2018) in Australian and US subjects with PTSD found a two-factor solution of self-efficacy and adaptability, similar to the Green et al report above.

When the original five-factors were applied as predictors of suicidal tendencies, Youssef et al (2013b) found that factor 3 (close relations and positive acceptance of change) was the strongest predictor.

Confirmatory factor analysis was used to assess three competing models in a sample of Mexican-American adolescents with substance use disorders. A single 7-item factor emerged, comprising items which were indicative of how one copes with difficult circumstances (Burrow-Sanchez et al, 2014).

Sarubin et al (2015b) has found that a single factor component accounted for the scale structure, using exploratory principal axis analysis.

Factor analysis of the CD-RISC in 120 patients awaiting liver transplant showed a single factor solution after removing five poorly loading items, which related mainly to meaning/purpose and coping (Fernandez et al, 2015).

A study conducted in 2357 Chinese military personnel found three factors which the authors named competency, toughness and adaptability (Xie et al. 2016). Four items (3, 15, 18 and 20) did not load on these factors. The authors made the interesting comment that "all religious beliefs and activities are banned by the Chinese military", which would essentially invalidate the items that tap into that construct, or at least be confusing to respondents. Although Xie et al obtained three factors, these were quite different from the three factors obtained by Yu and Zhang (2007) in their study of Chinese subjects.

A study of the CD-RISC in Spanish university students applied Rasch analysis to examine the structure and psychometrics of the CD-RISC (Gonzalez et al, 2015). Unlike most studies of scale structure and dimensionality, which rely on classical test theory and measures such as Cronbach's alpha, the Rasch analysis is based on item response theory, which has some advantages. The authors obtained unidimensionality for 22 items, after removing items 3, 9, and 20. The concluded that overall the instrument has good psychometric properties and serves as a satisfactory measure of overall resilience. Their study did find that the items are appropriate for detecting different levels of impaired resilience, e.g., in clinical samples, but that a ceiling effect at the high end might mean the scale would not be optimal in situations where the task was to differentiate between groups who had strong resilience to start with. In contrast. Kuiper et al (2019) did not find floor or ceiling effects with the scale in a Dutch sample with spinal cord injury.

Perera and Ganguly (2016) used confirmatory factor analysis (CFA) and exploratory structural equation modeling (ESEM) in a sample of 274 university students with disability. They identified general (G) and specific (S) factors of competence, control and spirituality and recommended ESEM as an approach that successfully accounts for the multidimensional structure of the CD-RISC due to (i) coexistence of general and specific constructs and (ii) fallibility of items as purely unidimensional indicators of the constructs they are designed to measure. The G and S factors were then found to relate to career optimism and wellbeing.

Exploratory factor analysis with oblique rotation resulted in the emergence of four factors in a sample of 575 Brazilian psychiatric and medical outpatients (Solano et al, 2016b), named tenacity (40% of the total variance), adaptability, social support and intuition. The internal coherence was high with a Cronbach alpha = 0.93.

Wu et al (2017) found four factors, labeled stress tolerance; tenacity/goal direction; adaptability/acceptance; optimism in a large community sample of new employees in Chinese cities.

The original five-factor structure was replicated by Sharma and Sharma (2016) in 160 employees of Indian IT companies. Another study in India found a four-factor solution, using exploratory factor analysis – hardiness, optimism, resourcefulness and purpose in adolescent low-income girls (Sidheek et al 2017).

A report by Laird et al (2018) found four factors in a sample of 337 US adults over age 60 with depression, these factors being labelled as grit, active coping self-efficacy, accommodative coping self-efficacy and spirituality.

Chen reported a Cronbach alpha = 0.92 in a sample of Chinese students (2018). Carter observed the Cronbach alpha to be 0.95 in 108 US women with children diagnosed with sickle cell disease (2019).

Tan et al (2019) found six factors by principal components analysis in 228 cancer patients, which they labelled: strength, spirituality/fate, social support, adaptability, best efforts and self-determination.

Faria Anjos et al (2019) found three factors of self-efficacy, spirituality and social support in a validation of the Portuguese CD-RISC-25, in 881 students, employees and general population subjects.

CD-RISC 10 and Factor Structure:

Campbell-Sills et al (2007) assessed a group of 1,743 undergraduates, 75% of whom were women, finding that the CD-RISC possessed an unstable four-factor structure in two identical cohorts. The authors removed those items that had inconsistent or non-salient loadings and those that corresponded to poorly defined factors. A 10-item scale emerged, and performed well in exploratory and confirmatory factor analyses: the items in this derivative scale came from the hardiness (items 1, 4, 6, 7, 8, 11, 14, 16, 17, 19) and persistence (item 11) factors of their previous analyses. The CD-RISC 10, according to the authors, is best seen as reflecting one latent factor of ‘resilience.’ The one-factor structure of the CD-RISC 10 has since been replicated in Chinese teachers (Wang et al, 2010), Chinese parents of children with cancer (Ye et al, 2017), Spanish students and Spanish patients with fibromyalgia (Notario-Pacheco et al, 2011; 2014), Spanish caregivers (Blanco et al, 2017), Brazilian adults (Lopes and Martins, 2011), low-income African-American men (Coates et al, 2013) a German community (Sarubin et al, 2015b), US competitive athletes (Gonzalez et al, 2016), Danish hospital employees (Lauridsen et al, 2017), Singaporean patients with axial spondyloarthritis (Kwan et al, 2018) and Spanish young adults (Gras et al, 2019). In the Danish study, the authors reported a Cronbach’s alpha of 0.87. One exploratory factor analysis in Nigerian student nurses demonstrated two factors, named toughness and motivation (Aloba et al, 2016). In that same study, the scale showed strong internal consistency with a Cronbach’s alpha = 0.81. A study of the Khmer translation of the CD-RISC-10 for adolescents found a single factor, and a Cronbach’s alpha of 0.82 (Duong & Hurst, 2016). A unifactorial structure was obtained using CFA and allowing for correlation of residues in a sample of 1862 patients with long-term physical disabilities (Terrill et al, 2016). A unifactorial structure was also obtained by Madewell and Ponce-Garcia (2016) in over 400 US college students. Munevar et al (2016) found a one-factor solution in 52 Colombian patients with chronic illness, and regarded the scale as being suitable for the Colombian culture. In this sample, the Cronbach alpha was 0.81. Cronbach’s alpha was 0.92 in a Chinese sample of ambulance and medical personnel (n = 227, Kang et al, 2018), and 0.94 in a Singaporean sample of patients with spondyloarthritis (Kwan et al, 2018). Meng et al (2019) noted an alpha of 0.93 for the RISC-10 in Chinese elders. In 1661Thai university students, Vongsirimas et al (2017) reported a one factor solution in two large samples, and a Cronbach’s alpha of 0.86. The report of Tourunen (2019) in Finnish elders derived two factors in a specific age group, and one factor in another age group. Cronbach’s alpha was 0.85. Hébert et al (2019) reported a unifactorial structure in Canadian college women, and a Cronbach’s alpha = 0.86. Alpha = 0.92 in a sample of Filipino-American women (Reyes et al, 2019).

CD-RISC-2 and Factor Structure

With only two items, it makes little sense to perform factor analysis, but one report found a Cronbach's α = 0.84 in 120 primary care patients (Langhinrichsen-Rohling et al, 2017). Sørensen et al (2019) reported a Cronbach's α = 0.70 in the Norwegian general population (n = 925).

Summary: In over 10,000 subjects, covering many different populations, studies have variously found 1,2, 3, 4, 5 and 6 factor solutions to best explain the structure of the 25-item scale. The observed differences across the studies are hardly surprising, and may reflect variations in methodology and sample, as well as underlying assumptions (e.g., pre-determining the number of factors, or items in a factor). For the 10-item scale, almost all studies have replicated its unifactorial structure, in keeping with the original purpose behind the development of this shorter scale.

Culture, Nationality and Ethnicity: Studies with the CD-RISC

Yu and Zhang (2007) noted the CD-RISC to show strong psychometric properties in a Chinese adult population, almost 75% of whom were between ages 20-49. Good internal consistency was obtained (Cronbach α coefficient = 0.91), and significant correlations were obtained between the CD-RISC and the Rosenberg Self-Esteem Scale, Life Satisfaction Index and the five scales of the NEO Inventory. As noted, a factor analysis produced somewhat different, yet still overlapping findings.

A second study in China examined the characteristics of parents of autistic children (PAC), as compared to parents of normal children (PNC). The PAC group showed lower levels of resilience on the CD-RISC, and this measure was inversely associated with levels of somatization, interpersonal sensitivity and phobic anxiety (Chen Yu, personal communication 2/29/2008).

In one South African study, the CD-RISC demonstrated validity in adolescents and the authors considered the scale to be a useful measure in their population, although in need of further validation. As in some other studies, Jørgensen and Seedat found that increasing age was associated with lower resilience (i.e., younger adolescents were more resilient than older ones), and that Black ethnicity was associated with lower scores.

An Iranian study (Khoshouei, 2009) showed good internal consistency for the CD-RISC (alpha coefficients ranging from 0.78-0.91), and good test-retest reliability (r=0.78-0.88).

Brown (2008) evaluated the CD-RISC in 153 African Americans. The scale correlated significantly with racial socialization messages as measured by the Teenage Experience of Racial Socialization Scale (TERS), Cultural Pride Reinforcement Scale (CPR) and the Multidimensional Scale of Perceived Social Support (MSPSS), particularly the special person and family support subscales of the MSPSS. A hierarchical regression analysis showed that, of all the variables studied, CPR and MSPSS-Special Person were the significant predictors of resilience, supporting Brown’s main hypothesis that social support and racial socialization would predict resiliency in young African American adults. In a later report, Brown and Tylka (2011) found that the CD-RISC was related to racial socialization and related messages, but not to racial discrimination.

An Italian study assessed the relation between resilience and aggression in 903 prisoners with or without substance abuse. Inmates with substance abuse scored lower on the CD-RISC than did the controls (Cuomo et al, 2008).

In a South African sample of 502 young people, Bruwer et al (2008) demonstrated convergent validity between the MSPSS and the CD-RISC, similar to the Brown study.

A study in Japanese students by Ito et al (2009) found good internal consistency (Cronbach’s α = 0.94 and 0.90 for two samples), and good test-retest reliability of 0.94 and 0.83.

Acceptable psychometric properties of the CD-RISC were obtained in a Turkish sample (Karairmak, 2010).

In Korean adults, the scale showed good internal homogeneity (0.93 for two samples) and acceptable test-retest reliability (r=0.70) (Baek et al, 2011). In depressed or anxious Korean outpatients, resilience was predicted by use of positive reappraisal, focus on planning and less use of rumination, according to the Cognitive Emotion Regulation Questionnaire (CERQ) (Min et al, 2013).

A community sample of older Native Americans from the southeastern US, part of the Native Elder Study, was studied and found to show resilience scores comparable to other US community samples (mean 83.0 (13.4) for the 25-item scale and 33.5 (6.2) for the 10-item scale) (Goins et al, 2012). Convergent validity was shown relative to measures of depression (r=0.51 both scales), self-efficacy (r=0.47 and 0.45 for the 25 and 10 item scales), self-mastery (r=0.29 and r=0.31) and social support (r=0.27 and r=0.21). Divergent validity was shown relative to handgrip strength and body mass index (non-significant or weakly significant correlations). A study of Native-Americans found a similar score on the CD-RISC-25 to a comparative group of Caucasians (78.3 vs 77.5) (Knows-His-Gun et al, 2013).

Iranian athletes were studied by Nezhad and Besharat (2010), who found that the RISC predicted athletic achievement, correlated positively with psychological wellbeing, and negatively with psychological distress.

A cultural form of validity was shown by Wu et al (2011) who found that in a culture that emphasized collective values more than individual ones, the RISC score was predicted by level of collectivist well-being, but not by individualistic well-being, in Chinese earthquake survivors. A similar finding has been reported by Yu and colleagues (2013a), who noted that family resilience (measured by the Zubrick scale) served as an additional predictor of depression beyond individual resilience, which was measured by the CD-RISC, in mainland Chinese refugees in Hong Kong.

In a community sample of 365 older Chinese women, Lim et al (2015) observed that stressful life events (SLE) and resilience moderated the impact of SLE in producing depression, and that optimism and sense of competence were two major aspects of resilience in this regard. In another study from China, Zhong et al (2016) found that in elderly patients, an authoritative parenting style was associated with higher resilience, compared to an authoritarian style.

Loh and Klug (2012) studied 108 Australian women who had immigrated after the age of 15, and found that the RISC was sole predictor of psychological distress (as measured by the General Health Questionnaire) in a multiple regression analysis, as well as correlating significantly with measures of acculturation (+ve), length of residence (+ve) and distress (-ve). Resilience was an important mediator of the acculturation process and helped to minimize distress.

Suarez (2012) studied 75 Quechua women in Peru, who had survived extreme violence (torture, sexual violence, combat, death of family members and forced displacement). While CD-RISC score did not contribute to variance in PTSD symptoms, it did contribute to post-traumatic distress when this was measured by local (idiomatic) symptoms. This interesting study speaks to the benefit of measuring distress according to common symptoms in a culture.

Resilience was found to increase in Australian teenage refugees the longer they had been in the country, which speaks to the possibility that as people successfully adapt to new environments, their resilience increases (Ziaian et al, 2012).

Coates et al (2013) have reported a unifactorial structure of the CD-RISC-10 in low income African-American males, as well as correlations with spirituality and well-being.

Burrow-Sanchez et al (2014) studied Mexican-American adolescents with substance use disorders, and noted that a single factor of hardiness taken from the scale held a direct relationship with ethnic identity as measured by the Multigroup Ethnic Identity Measure (MEIM) ($r = 0.285$, $p<0.01$), and that ethnic identity mediated the indirect relation between hardiness and depressive symptoms.

In survivors of a Haitian earthquake, spiritual belief and religious practice related to level of resilience. Those who believed that God was responsible for the event had higher CD-RISC score (77.3) than did those without such belief (65.3), and those who practiced the Voodoo religion also had higher scores (72.5) compared to non-practitioners (64.6) (Blanc et al, 2016).

A study of young adults in Afghanistan revealed no correlation between the CD-RISC and a measure of hope and optimism, or with mental and physical distress. The authors opined that in collectivist cultures the RISC score might be lower and also not as sensitive as local culturally relevant measures such as the one-item scale they used to assess hope and optimism (Alemi et al, 2018). The authors make the interesting suggestion that there is perhaps need to shift thinking away from “I” and “self-image” to “Us” when conceptualizing resilience in “non-western” societies.

A comparative study of factors related to nurse burnout showed that in Australian nurses, only intention of turnover was associated with burnout, whereas in Chinese nurses, low resilience, turnover intent and lack of exercise predicted burnout (Guo et al, 2018). RISC score was significantly lower in Chinese sample.

Validity

The CD-RISC has been compared to numerous other measures that in one way or another are related to aspects of resilience, such as hardiness, social support, stress-coping ability, self-esteem, life satisfaction, successful aging, positive and negative affect. The results of many investigations assessing the scale’s validity will be described.

Construct: The construct of resilience would postulate that those who suffer from depression, PTSD, substance abuse, psychosocial problems and suicidal behavior would be less resilient than their counterparts, and this is indeed the case, as noted above in the presentation of mean scores across different populations (Tables 1-8). Moderating or mediating effects of resilience have been predicted and demonstrated with respect to associations between early adversity and outcomes like depression and suicide attempt, both with the CD-RISC 10 (Wingo et al, 2010; Campbell-Sills et al, 2007) and the CD-RISC 25 (Campbell-Sills et al, 2007). Wingo et al concluded that, using the CD-RISC 10, resilience moderated depression in those who had been exposed to childhood trauma both as a main effect and an interaction with trauma exposure. An increase of 5 points on the CD-RISC 10 was associated with a decrease of 2.5 points on the Beck Depression Inventory (BDI). The nature of the CD-RISC x trauma interaction was such that, for a given level of trauma, the high CD-RISC group (>75th percentile) had lower BDI scores than the less resilient groups.

Construct validity comes from a study by Roberts et al (2007), which showed that among 252 veterans of Iraq or Afghanistan, those with higher resilience were less likely to develop PTSD (OR = 0.11, 95% CI = 0.06-0.21), and of those who did have PTSD, resiliency was uniquely associated with decreased PTSD severity after accounting for demographic variables and combat severity ($\beta = -.0.37$, $p<0.001$). Roy et al (2007) showed that the CD-RISC score was lower in substance abusers with a history of attempted suicide than in those with no such history, and that in a logistic regression, the risk of suicide attempt was predicted by the CD-RISC but not the Childhood Trauma Questionnaire (CTQ) score for either emotional or physical abuse. In a second report by the same group, the authors found that CD-RISC score, but not Beck Depression Inventory, predicted suicide attempt (Roy et al, 2007). Likewise, Nrugham et al (2010) reported that resilience moderated the association between a lifetime history of violence and attempted suicide even in the presence of antecedent depression. A later report by Roy et al (2011) found a protective effect for resilience against suicide in those who had experienced childhood trauma in two separate samples: prisoners (n=332) and substance abuse patients (n=40). Similar results were found by Youssef et al (2013a, 2013b) in two samples of OIF/OEF veterans. Baseline CD-RISC score predicted suicidality at three-year follow-up to a greater extent than did PTSD or alcohol use, and opined that the assessment of resilience and childhood trauma can contribute to their clinical status regarding depression and suicidal ideation..

Breno and Paz Galupo (2007) assessed 82 adult women who had been on the Child Welfare rolls as teenagers, and found that trauma-related beliefs of powerlessness and self-blame correlated negatively ($r=-0.54$, $p<0.01$) with resilience.

One study assessed the relationship between resiliency and scores on an anatomy test in 79 Mexican medical students (Elizondo-Omaña et al, 2007). A significant correlation was obtained between grade and CD-RISC ($r=0.55$, $p<0.05$).

In South African adolescents, Fyncham et al (2009) showed that resilience moderated the relationship between childhood abuse and PTSD symptoms, reducing its impact on PTSD in the presence of high resilience.

Simon et al (2009) showed that childhood abuse, particularly of the emotional neglect type, was associated with lower levels of resilience in generalized social anxiety disorder.

McTighe (2009) failed to demonstrate any relationship between meaning-making and resilience score in social workers who had experienced the attacks on 9/11, although some relationships emerged between certain CD-RISC factors (spirituality and stress) and personal witnessing of 9/11, experience of major loss and length in practice.

Burns et al (2010) evaluated a large Australian general population cohort (n=3,989) and demonstrated that the effects of resiliency upon depression and anxiety were fully moderated by positive and/or negative affect.

In a study of college students, Otto et al (2010) reported that a small group of "flourishers" (14% of their sample) showed greater resilience than did "non-flourishers" (mean scores circa 83 and 72 respectively).

In a post-earthquake population, the CD-RISC was the only psychological variable to predict (lower) symptoms on measures of PTSD and depression (Ahmad et al, 2010).

Following the 2004 earthquake and tsunami in Aceh and Nias, Irmansyah (2010) observed that resilience as measured by the CD-RISC 2 served as an independent predictor of outcome, according to the Self Report Questionnaire (SRQ-20).

Huang (2010) found that social support and better coping strategies were associated with greater resilience in diabetics, and that resilience was significantly and positively associated with health-related quality of life and diabetic self-care (e.g., diet and exercise).

Pietrzak et al (2010) noted that veterans with suicidal ideation had significantly lower scores on the CD-RISC, and that CD-RISC score were negatively related to suicidal ideation.

A relationship was found between insomnia and suicidality in 1,420 male Italian prisoners, with resilience emerging as one of the variables that independently predicted insomnia (Carli et al, 2011). In another report by the same group, the CD-RISC score was lower among the low-impulsive group than in the high-impulsive group, and CD-RISC was one of a number of independent predictors of suicidality, in that greater resilience was associated with lower risk of suicidality (Carli et al, 2010). A third report by Carli et al (2013) found that CD-RISC score predicted impulsivity on the Barrett Impulsivity Scale but not aggressiveness as measured by the Brown-Goodwin scale. The authors concluded that impulsivity and aggression were two different personality traits.

Response readiness to chemical and other threats was studied in a representative sample of paramedics in New South Wales, Australia. Using the CD-RISC 2, the authors found that personal resilience emerged as one of the strongest predictors of response readiness (Stevens et al, 2010).

A study of medical interns failed to demonstrate an association between resilience, as measured by the CD-RISC, and depression during internship (Sen et al, 2010).

In 120 Iranian university students, the CD-RISC score was a negative predictor of risk for developing substance abuse (Fadardi et al, 2010). A later study in 260 Iranian university students showed a negative correlation between CD-RISC-25 and severity of obsessive-compulsive personality disorder (Zakiei et al, 2017).

CD-RISC scores were lower in those with PTSD compared to those without (62.9 vs. 77.6, $p<0.001$) (Green et al, 2010) and, in the same sample, lack of resilience uniquely predicted risk for PTSD, suicidality, alcohol problems, depression and poor health. The authors concluded that resilience may be a construct that plays a unique role in the occurrence of PTSD and severity of other correlates among deployed veterans.

Higher couple functioning was associated with greater resilience, regardless of level of PTSD, in couples where either one or both members had experienced combat (Melvin et al, 2012).

Repressor type coping and trait anxiety, but not resilience, were predictive of post-deployment PTSD in a sample of US Air Force medical personnel (McNally et al, 2011).

Gabriel et al (2011) found that high resilience (HR) was associated with positive affect regardless of task accomplishment in nurses, i.e., they concluded that HR subjects were able to sustain positive affect under any circumstance, but for those with LR, positive affect was dependent on task accomplishment. No such interactive effect was found for negative affect, suggesting that resilience may be more crucial for maintaining positive emotion at times of daily stress rather than preventing negative affect.

Phillips (2011) found that unemployed men with the highest cognitive flexibility as measured by the Short Category Test were those with the highest score on the CD-RISC.

Pietrzak et al (2011) used cluster analysis to derive three groups of OIF/OEF veterans: low combat/low PTSD (n=134), high combat/high PTSD (n=72), and high combat/low PTSD (n=61). CD-RISC scores in the groups were 76.0 (1.9), 66.3 (2.6) and 80.1 (2.2). The authors reported that membership in the highly resilient group was characterized by the following: being in a relationship, having few psychosocial difficulties, reporting greater sense of purpose and control, and the presence of family support. They made suggestions as to the implications of these findings for the development of therapeutic interventions. In a later study of a large national cohort of older veterans, these authors found that resilience (CD-RISC-10) was a predictor for successful aging, along with gratitude and purpose in life (Pietrzak et al, 2014).

A weak but significantly negative correlation ($r=-0.19$, $p<0.05$) was found between extent of alcohol intake and resilience in 88 college students at the University of Nebraska (Johnson et al, 2011).

In spinal cord injury (SCI) patients, resilience buffered the effects of SCI-related stressors on depression, and that the resilience model may be useful in guiding interventions designed to improve mental health in SCI patients (Catalano et al, 2011).

Dodd (2010) found that greater resilience was associated with secure attachment over fear-based attachment, as well as with social support in disabled in-patients undergoing post-injury rehabilitation.

In a national survey of 744 nurses, Mealer et al (2011) found that higher resilience was associated with lower rates of PTSD and burnout. A later qualitative study by this group showed that highly resilient nurses (n=13) differed from nurses with PTSD (n=27) in having greater spirituality, supportive social network, optimism and a resilient role model in coping with adversity. Differences were found in worldview, cognitive flexibility, social network and self-care (Mealer et al, 2012).

In depression and anxiety, those with lowest CD-RISC scores were found to be less spiritual in their orientation, to have less purpose in life and to take less exercise; they also showed more trait anxiety (Min et al, 2012).

In a sample of female outpatients who had received mammography, lower resilience levels were associated with current anxiety (but not depression) and previous trauma (Scali et al, 2012).

Posttraumatic growth mediated posttraumatic growth in parents of children undergoing surgery to correct congenital disease, and as positively associated with CD-RISC score (r=0.432, p<0.01) (Li et al, 2012).

Volunteering in the community and number of chronic health problems were associated (positively and negatively respectively) with resilience, while the two variables also interacted in predicting resilience, such that greatest RISC score was found in volunteers who had the highest number of chronic health problems. A limitation of this study was the authors’ use of an unvalidated six-item variant of the RISC, the structure of which differed substantially from the validated forms of the CD-RISC (Okun et al, 2011).

Among a national sample of 1,100 war veterans, resilience was found to be lower in those who had demonstrated severe violence or other aggression, and the CD-RISC score emerged as an independent predictor of other physical aggression, but not of severe violence, in the sample (Elbogen et al, 2012).

In 351 combat-exposed Stryker Brigade troops, resilience fully mediated the relationship between psychological skills (goal setting, stress management, cognitive skills) and PTSD (Hammermeister et al, 2012).

A large cohort of over 63,000 Air Force personnel was studied by Prabahakaran et al (2012), who showed that CD-RISC-10 score was related to all four pillars of fitness (i.e., physical, emotional, social and spiritual) in the Air Force Comprehensive Fitness program, with the key drivers of resilience being personal coping and symptoms of depression.

Hourani et al (2012) studied 475 active duty marines who were transitioning into civilian life. They found that pre-separation CD-RISC score predicted risk (i.e., higher scores protected against) of mental health problems and functional impairment on follow-up, with strongest influence being noted on the latter.

Kramer (2012) observed that resilient individuals were more likely to use accommodative coping to maintain their assumptions following stress, and that being resilient was predictive of using accommodative focused coping and of positive growth after a stressful event.

Following mild traumatic brain injury (mTBI), resilience (along with depression) was found to predict post-injury anxiety and post-concussion symptoms after accounting for other factors (McCauley et al, 2013). In another study of TBI, the CD-RISC-10 was lower in those with cases as defined on the Brief Symptom Inventory (BSI) compared to non-cases (18.7 vs 26.4), and the score correlated significantly with degree of adaptation to brain injury, and to BSI depression (Lukow et al, 2015).

The ability to switch flexibly back and forth between processing affective and non-affective stimuli has been regarded as central to trait resilience. Genet and Siemer (2013) showed that resilience, as measured by a combined score of the CD-RISC and Block's Ego Resiliency Scale, was predicted by greater flexibility on an affective task-switching test.

Successful aging was predicted by resilience to the same extent as it was predicted by physical health and depression in a large cohort of older community members (Jeste et al, 2013).

In a sample of Korean psychiatric outpatients, the RISC was positively correlated with CERQ measures of positive refocusing and reappraisal, focus on planning and putting things into perspective, while CD-RISC scores were negatively correlated with Beck depression score, State-Trait anxiety, self-blame, catastrophizing and rumination (CERQ) (Min et al, 2013).

CD-RISC was the only variable to predict level of PTSD symptoms in a group of 38 Italian industrial accident survivors (Ghisi et al, 2013), and scores were lower (61.3) in the trauma group than in the controls (74.2).

Resilience mediated the effect of dispositional optimism on subjective well-being in a group of burn-injury patients, as well as having in independent effect on well-being (He et al, 2013).

Resilience predicted risk of psychological vulnerability to a greater exent than did positive affect in Iran men attending a fertility clinic (Abolghasemi et al, 2013).

Senders and colleagues (2014) observed a strongly positive correlation between CD-RISC score and a measure of trait mindfulness, the Five Facet Mindfulness Questionnaire (FFMQ)($r=0.67$), and noted that mindfulness accounted for 44% of the variation in CD-RISC score in a group of patients with multiple sclerosis.

In their community study of the CD-RISC 10 in Memphis, Campbell-Sills et al (2009) demonstrated that the CTQ measure of early sexual abuse predicted CD-RISC in a multiple regression model ($\beta=-0.10$, $p<0.05$), but no such relationships were observed for the emotional and physical neglect measures.

Wingo and colleagues (2014) found that higher CD-RISC-10 scores mitigated against the risk of harmful alcohol and illicit drug use in a large cohort ($n=2024$, mean CD-RISC-10 score = 31.8) of inner-city residents, most of whom were African-American, all recruited from hospital clinics. Resilience had a buffering interaction effect in those who had experienced childhood abuse, affording greater protection against harmful drug and alcohol use. A later report by the same group obtained a significant correlation between the RISC-10 and social function (beta = 1.11, $p<0.0001$) in veterans with PTSD and depression (Wingo et al, 2017).

Adolescent survivors of the Wenchuan earthquake were less likely to develop depression and PTSD if they showed greater resilience (Ying et al, 2014).

Paramedic students in South Africa who had PTSD showed lower resilience scores than those without (Fjeldheim et al, 2014), and the CD-RISC served as a predictor of PTSD status in a multivariate logistic regression.

CD-RISC score moderated the relationship between traumatic experience and PTSD symptoms in Korean firefighters, and for equal exposure to trauma, it was found that those with CD-RISC scores in the upper 25th percentile were protected from the direct and indirect effects of trauma relative to those in the lower percentiles (Lee et al, 2014).

In postpartum women who had been exposed to childhood trauma, the RISC score predicted postpartum depression and PTSD, and sense of competence and overall functioning. The CD-RISC moderated the effect of high degree early trauma on outcome; in those with scores above 53, the rate of postpartum PTSD was 8%, while in those with scores below 29, the rate was 58% (Sexton et al, 2015).

In sixty-eight Swiss cancer patients, low resilience was associated with greater unmet psychological needs concerning their cancer. Age, metastasis, living alone and recurrence were predictive factors of resilience (Dubey et al, 2015).

The CD-RISC-10 score was negatively correlated with the Silencing of the Self Scale (STSS) score in a sample of US women who were HIV +ve (Dale et al, 2014b). STSS contributed to resilience over and above the contribution of other variables.

Daily alcohol consumption correlated negatively with CD-RISC-10 score in police officers exposed to trauma. The mean score was 31.5 in those consuming 2 daily drinks or less, versus 25.3 in those who had 7 or more daily drinks (McCanlies et al, 2014).

The severity of traumatic injury as measured on the Glasgow Coma Scale (GCS) correlated significantly with the CD-RISC-10 score at baseline ($r = 0.257$) and 12 months ($r = 0.338$) in 110 traumatically injured inpatients (Rainey et al, 2014).

Nicotine withdrawal symptoms are associated with more severe PTSD. Resilience protected patients against severe PTSD when nicotine withdrawal was mild, but not when severe, suggesting a protective function for resilience against PTSD in those with mild (but not severe) nicotine withdrawal (Asnaani et al, 2015).

The CD-RISC-2 score was lowest in those with PTSD and depression, compared to those with PTSD or depression alone, and controls, in a sample of Korean firefighters (Jeong et al, 2015).

A large community study of the Hong Kong general population demonstrated significant correlation between the CD-RISC-25 and CD-RISC-2 with depression (negative), family harmony and functioning (positive) and no significant relation to alcohol intake (Ni et al, 2015).

A study of 161 Native American Indians and Caucasians at the St. Labre Community showed positive relationship between resilience and length of time employed and between resilience and existential wellbeing, and a negative relationship with years of unemployment (Knows-His-Gun et al, 2013).

The CD-RISC-10 correlated negatively with Maslach's Burnout scale (emotional exhaustion, cynicism and reduced personal accomplishment) and positively with a measure of psychological empowerment in a group of Chinese telephone operators (Tian et al, 2015).

Ultra-endurance Ironman athletes scored significantly higher than recreational athletes on the CD-RISC-25, and also the resilience scores of the combined group correlated negatively with the personality dimension of harm avoidance; there was no correlation versus reward dependency or novelty seeking (Van Breda et al, 2015).

Two studies showed that the CD-RISC correlated with or predicted psychological wellbeing in Australian university students (Pidgeon and Keye, 2014) and Indian geriatric subjects with depression, rheumatoid arthritis or accompanying persons of these patients (Singh et al, 2014).

Functional status was the sole variable to predict resilience in a group of Iranian stroke survivors (Derakhshanrad et al, 2014). A later study by this group obtained positive correlations between the CD-RISC-25 and measures of motivation (the AAMQ), occupational performance and satisfaction on the Canadian Occupational Performance Measure (r = 0.67, 0.45 and 0.48 respectively) (Derakhshanrad & Piven, 2017).

The CD-RISC correlated with measures of self-concept and social support in 1,250 Spanish adolescents (Rodriguez-Fernandez et al, 2015).
Among parents of children with intellectual disability, the CD-RISC correlated negatively (-0.224) with a measure of impact of disability, while a

positive (0.479) correlation was obtained relative to positive impact of disability on the parent in an Indian sample (Rajan and John, 2016).

In 115 Chinese patients, cut off scores of 45.5 and 19.5 were found to distinguish best between those with and without PTSD for the CD-RISC-25 and CD-RISC-10 respectively (Peng et al, 2016).

In a large study of over 50,000 Air Force recruits, CD-RISC score was lower (76.9) in those who were eventually separated from service as being unsuitable, compared to the remainder (84.0), and similarly for those who developed mental illness (76.1) compared to those without (83.9) (Bezdjian et al, 2016). AUC cutoff scores to discriminate between groups showed moderate sensitivity (64-65%).

Healthy eating index (HEI) scores according to US dietary guidelines were associated with higher CD-RISC scores and for every 10-point increase in the HEI, the likelihood of being in the high resilience group increased by 22% (Lutz et al, 2016).

In older members of the Naples, Italy, metropolitan area, correlation was observed between CD-RISC-2 score and Psychological General Wellbeing Short Scale (r=0.22, p<0.0001) (Rapacciuolo et al, 2016).

A US study of subjects with physical disability found that CD-RISC-10 was correlated with social role satisfaction (beta =0.17, p<0.001) and Older Person Quality of Life (OPQOL) scale (beta = 0.39, p<0.001). but bot with physical role (Battalio et al, 2016).

Among 377 Chinese nurses, the CD-RISC-10 correlated (r=0.40 – r=0.46, p<0.01) with measures of achieving rapport, listening receptively and communicating effectively, and the scale moderated the effect of emotional intelligence on clinical communicative ability (Kong et al, 2016).

Dispositional mindfulness and optimistic expectations of achieving success predicted resilience on the CD-RISC-10 in Australian student nurses (Chamberlain et al, 2016).

The presence of personality disorder traits was associated with CD-RISC-25 score in almost 4000 Chinese factory employees, with lower RISC scores associated with greater chance of personality pathology (Tan et al, 2016).

Another study of the relationship between resilience and personality in US war veterans showed that those with over-controlled and under-controlled personalities were less resilient than those categorized as having resilient personalities (Elliott et al, 2016).

Resilience correlated positively with physical self-concept in 148 Chilean judo practitioners (Zurita-Ortega et al, 2016).

In 430 Spanish adults, the CD-RISC-25 correlated negatively with two dimensions of coping on the SCQA (Alonso-Tapia et al, 2016): rumination, emotional expression, and positively with three: help seeking, positive thinking and problem solving.

CD-RISC scores were lower in bipolar disorder and also correlated with quality of life in a group of 136 Chinese subjects with bipolar disorder and in healthy controls (Lee et al, 2016), as well as in Greek patients (Bozikas et al, 2018).

The CD-RISC-10 correlated positively with empathy (r=0.23) and mindfulness (r=0.47), and negatively with perseverative thinking (r=-0.23) in Indian nursing students (Mathad et al, 2017).

You and Park (2017) found that higher score on the CD-RISC-25 protected men, but not women, against suicidal behavior in a large community sample of Korean elders.

Poole et al (2017a) noted that resilience moderated the relationship between adverse childhood experiences and depression, as well as independently predicting depression in primary care patients. She also observed a correlation between the RISC-10 and anxiety on the GAD-7 (r=-0.48), Adverse Childhood Experiences (r=-0.19) and emotional dysregulation on the DERS (r=-.062, all p<0.001). Resilience moderated the effect of ACEs on emotional dysregulation, with ACEs having stronger influence on dysregulation in those with low resilience than in those with high resilience (Poole et al, 2017b).

In a sample of Swiss parents, the CD-RISC-2 was found to correlate positively (r = 0.17) with an emotional coach type of parenting, and negatively with dismissing and disapproving styles of parenting (r = -0.12 and -0.14) (Gianesini, 2012).

Older Chinese married couples were studied as to the relationship between sense of community and life satisfaction, and the moderating influence of personal and partner resilience. Both of the latter, along with sense of community predicted life satisfaction, and in cases where resilience was low, the effect of sense of community on life satisfaction was weaker (Zhang et al, 2017).

Resilience was related to perceptions of mattering, isolation and marginalization in physical educators (Richards et al, 2017).

The control factor of the CD-RISC was associated with psychological wellbeing and the personal competence subscale factor with physical wellbeing in 986 community and university subjects: each of these β values was greater than the values for other resilience measures in a regression analysis (Maltby et al, 2017).

Resilience correlated positively with satisfaction with life ($r = 0.43$), gratitude ($r = 0.35$), social support ($r = 0.42$) and negatively with PTSD symptoms ($r = -0.39$) in a sample of 113 New Orleans police officers dealing with the aftermath of Hurricane Katrina (McCanlies et al, 2017).

The CD-RISC was associated with capacity to learn from one's mistakes ("self-regulation"). Unfortunately, the authors extracted an unofficial 15-item scale to demonstrate this interesting finding, making it impossible to interpret and of uncertain relevance to the available and validated forms of the CD-RISC (Artuch-Garde et al, 2017).

McKillop et al (2017) found the CD-RISC to correlate negatively ($r = - 0.28$, $p < 0.05$) with scores on the Pain Disability Index (PDI) in 70 Canadian patients with chronic back pain. Other correlations between the CD-RISC-10 and CD-RISC-2 and measures of pain were reported by Sharma et al (2018). In their study of Nepali patients with chronic pain, the RISC-10 correlated at $r = -0.35$ for pain catastrophizing (PCS) and $r = -0.27$ for pain intensity (PROMIS). Correlations for the CD-RISC-2 were -0.30 and -0.27.

A new scale to measure wisdom was developed by Jeste's group (Thomas et al, 2017). This scale, the SD-WISE, shares a number of features in common with resilience and the CD-RISC-10 was used to demonstrate construct validity. Of nine measures of mental health and wellbeing, the correlation of the SD-WISE to the CD-RISC-10 (r = 0.33) was highest of all scales.

In 606 Indian adolescent girls, the Kannada version of the CD-RISC correlated negatively (p<0.001) with psychological distress on the Kessler-10 scale, and scores were lower (58.2) in those below the K-10 cutoff of 20 (Sidheek et al, 2017).

The percentage of subjects with CD-RISC scores below the median was higher in US veterans with suicidal ideation (76%), and violent impulses (82%) than in those with neither (49%) (Elbogen et al, 2017).

Chen, Chen and Bonanno (2018) reported that enhancement and suppression ability, as measures of flexibility in emotional regulation, correlated significantly with the CD-RISC score (r = 0.26 and 0.33) in 310 Chinese college subjects.

Brown et al (2018) reported a positive correlation (p < 0.001) between CD-RISC-10 score and job satisfaction among US nurses.

Crosta et al (2018) reported a negative correlation between the CD-RISC-25 and Childhood Trauma Questionnaire (CTQ) score an Italian sample (r = -0.42, p < 0.01).

In 343 Hungarian subjects, the CD-RISC-10 correlated significantly with measures of competitive qualities: lack of competitive interest, anxiety-driven avoidance of competition and competitive orientation (r = 0.12. r = 0.23 and r = 0.24) (Gabor et al, 2018).

In a mixed Chinese sample of schizophrenia, bipolar disorder and healthy controls, the CD-RISC-25 correlated positively with three different measures of cognitive function: Executive function, verbal comprehension and working memory (Deng et al, 2018).

In 355 pregnant women, adverse childhood experiences (ACEs) were associated with mental and behavioral health problems in those with low resilience scores below 33 on the CD-RISC-10, but not in those with higher scores (Young-Wolff et al, 2018).

Suicide attempters had lower RISC-10 score than did those who thought about, but did not attempt, suicide, and both were significantly less resilient than healthy controls in a Scottish national sample (Wetherall et al, 2018).

Treatment compliance was associated with higher resilience (80.8) than in non-compliers (73.1) who underwent hemodialysis in Iranian hospitals (Noghan et al, 2018).

RISC scores were negatively correlated with alexithymia (Toronto Alexithymia Scale) and positively with the Jefferson Physician Empathy Scale (Morice-Ramat et al, 2018) in 137 French medical residents. However, the investigators only used 21 of the 25 items in the RISC, making it impossible to interpret the findings or compare them to others.

In Chinese nursing students, posttraumatic growth correlated (r=0.432) with the RISC-10 (Li et al 2019).

Convergent Validity:

Other Measures of Resilience:

CD-RISC-25
Significant correlation was found between the CD-RISC-25 and Wagnild and Young's Resilience Scale-25 in a German population (Sarubin et al, 2015b) (r = 0.60). Sanchez-Teruel and Robles-Bello (2015) observed a significant correlation between the CD-RISC and RS-14 of Wagnild (r = 0.87) in 323 Spanish college students.

DeSimone et al (2016) found a correlation of r = 0.79 between the RISC-25 and their new 25-item 5x5 resilience scale. They also found that all five RISC subscales, including the spirituality factor, correlated significantly with most of the 5x5 subscales.

In a study of the Brief Resilience Scale (BRS), Smith and colleagues found that the BRS correlated with the CD-RISC-25 (r=0.59, p<0.01) (Smith et al, 2008). Significant correlations were also found between the CD-RISC and the PSS (r=-0.53, p<0.01), positive and negative affect on the PANAS (r=0.68 and r=-0.25, p<0.01), as well as anxiety and depression on the

Hospital Anxiety and Depression Scale (HADS) (r=-0.40 and r=-0.35, p<0.01). Two of these correlations held up when partialling out for the effect of other measures in the model.

Relative to another resilience scale, the RSA of Friborg and Hjemdal, the CD-RISC correlated significantly (r=0.41) in 373 Iranian adults (Jowkar et al, 2010).

The Responses to Stressful Experiences Scale (RSES), developed by Johnson et al (2011) to assess response patterns to more severe stress, correlated significantly with the CD-RISC in two samples of 224 active duty Marines and 103 veterans of OIF and OEF (r=0.61 and 0.81).

Refugees from the Chinese mainland to Hong Kong showed a significant correlation between their scores on the Zubrick Family Resilience Scale and the CD-RISC (r=0.35, p<0.001) (Yu et al, 2013a).

In a paper that described the development of a new scale for adolescents, the Singapore Youth Resilience Scale (SYRESS) correlated at r=0.88, p<0.01) with the CD-RISC-25 (Lim et al, 2011).

The CD-RISC-25 correlated with the Resilience Scales of Wagnild 25 and 14 item versions: r=0.72 and r=0.72) in 421 US college students (Madewell and Ponce-Garcia, 2016).

CD-RISC-25 factors of ego-resiliency, tenacity, strength and optimism correlated significantly (r = 0.45 to r = 0.65) with the perseverance and optimism factors of the Resilience Style Questionnaire (RSQ) in a Hong Kong sample (Mak et al, 2017).

A new scale, the 10-Factor Resilience Behavior Scale, correlated at r = 0.437 (p = 0.001) with the RISC-25 in Japanese medical students (Kaye-Kauderer et al, 2019)

CD-RISC-10 and CD-RISC-2

In a US study, correlations of 0.7 and 0.8 were found between the RISC-10 and Wagnild's RS in children with chronic pain and in their parents (Gmuca et al, 2019).

Sarubin et al (2016b) reported a correlation of 0.60 ($p < 0.001$) between the RISC-10 and RS-25.

In 465 Hungarian students, the CD-RISC-10 correlated significantly with the Ego Resiliency Scales (ER89 and ER11) of Block and Kremen, and the CD-RISC showed stronger correlation with aspects of resiliency reflective of stability (conscientiousness, agreeableness and emotional stability) than to flexibility (extraversion and openness), whereas for the ER scale, it was vice-versa.

The Spanish version of the CD-RISC-10 correlated significantly with the Spanish Brief Resilience Scale ($r = 0.56$) (Rodriguez-Rey et al, 2015).

Among 40 patients with chronic obstructive pulmonary disease who were studied in Colombia, the CD-RISC 2 correlated with the Wagnild and Young Resilience Scale (RS) ($r=0.750$, $p<0.01$).

The BRS and RISC-10 were both used in a study of first responders, with somewhat different findings emerging, one scale (RISC-10) predicting outcome more successfully. The authors entered a useful discussion on the differences in content between the two scales and the importance of different aspects of resilience (e.g. bouncing back, positive adaptation, persistence) in regard to successful dealing with stress. They also noted the issue of a high baseline score making less likely the chance of prediction (Joyce et al, 2018). They also drew attention to the possible importance of sufficiently long follow up to detect maximum gain: three months may not be enough.

The RISC-10 correalted significantly with measures of mental and physical wellbeing, quality of life, social support, volunteer work, physical performance, but not with cognitive performance, in 958 Finnish elders (Tourunen et al, 2019)

CD-RISC-25:
Concurrent (convergent) validity is demonstrated by showing that the scale correlates with like measures, either of resilience itself (see above) or related measures such as stress coping, self-esteem, optimism, symptoms of depression or anxiety.

Three Chinese studies have assessed the convergent validity of the CD-RISC. In one (Yu and Zhang, 2007a), the CD-RISC correlated with the Rosenberg Self-Esteem Scale ($r=0.49$, $p<0.01$), the Life Satisfaction Index A ($r=0.48$, $p<0.01$), and all five factors if the NEO-FFI (i.e., neuroticism, $r=-0.47$; extraversion, $r=0.43$; openness, $r=0.27$; agreeableness, $r=0.36$; conscientiousness, $r=0.64$ – all $p<001$). In another study (Yu and Zhang, 2007b), the CD-RISC and Ego Resiliency Scale (ERS) were evaluated and the CD-RISC proved superior in comparison to the ERS in respect of correlations against the NEO, self-esteem and life satisfaction scales, 6 out of 7 of which were significant for the CD-RISC (ranges $r=-0.39$ to 0.54), and only one of which was significant for the ERS (ranges $r=-0.13$ to 0.19). In a third report of adolescents, the CD-RISC and nearly all of its five factors correlated significantly in expected directions with the Children's Depression Inventory, the Screen for Child Anxiety Related Emotional Disorders and the Multidimensional Scale of Perceived Social Support. Only in factor 5, which contains 2 items, were correlations non-significant for depression and anxiety (Yu et al, 2011).

Positive correlations have been shown against the Kobasa Hardiness scale ($r=0.83$, $p<0.001$), the Sheehan Social Support Scale ($r=0.36$, $p<0.0001$). Negative correlations were found for the Perceived Stress Scale ($r=-0.76$, $p<0.001$), the Sheehan Stress Vulnerability Scale ($r=-0.32$, $p<0.0001$), and the Sheehan Disability Scale ($r=-0.62$, $p<0.0001$) (Connor and Davidson, 2003).

Maguen and colleagues (2008) found that in 328 military medical personnel preparing for deployment, the CD-RISC score correlated with the PTSD Checklist-Military (PCL-M) measure of PTSD ($r=-0.22$, $p<0.01$), negative ($r=-0.32$, $p<0.01$) and positive ($r=0.62$, $p<0.01$) effect on the Positive and Negative Affectivity Schedule (PANAS). In subsequent hierarchical linear regression analyses of predictors for positive and negative affect, the CD-RISC remained as a significant predictor, but not in the model to predict

PTSD symptoms. The authors stressed the important association between resilience and positive affect.

In an epidemiological survey of older community members in California, Lamond et al (2008) observed a significant predictive relationship between the following variables and CD-RISC score: emotional wellbeing (r^2=0.237, p<0.001), cognitive functioning (r^2 =0.303, p<0.001), self-reported successful aging (r^2 =0.353, p<0.001), optimism (r^2 =0.386, p<0.001) and days spent with family and friends (r^2 =0.386, p<0.001).

Campbell-Sills et al (2006) demonstrated a number of convergent relationships between the CD-RISC and other measures, in keeping with their hypotheses. In 132 undergraduates, the investigators assessed the degree to which the CD-RISC served as a satisfactory measure of adult resilience. They predicted that coping style would relate to resilience and that, secondly, the CD-RISC would show convergent validity with related measures, and divergent validity against less closely related ones. Lastly, they assessed the degree to which the scale served as measure of buffering (i.e., showed a ‘moderator’ effect) on the relationship between recalled childhood abuse and current psychiatric symptoms as measured by the Brief Symptom Inventory (BSI). Their findings showed that strong correlations existed with three of the five NEO dimensions (neuroticism, r=-0.65; extraversion, r=0.61 and conscientiousness, r=0.46). Lesser but still significant correlations were found relative to the openness (r=0.20) and agreeableness (r=0.15) scales. Except for one comparison, gender and ethnicity did not influence these findings. As to coping, in a regression model, task-oriented coping (‘active’ coping) and emotion-oriented coping showed positive and negative relationships with CD-RISC respectively (β=0.39, t=6.06, p<0.001 and β=-0.18, t=-2.39, p<0.05). With regard to their last hypothesis that resilience would moderate the relationship between early trauma and current symptom state, the authors found this to be the case, in that those with high resilience and severe early trauma failed to exhibit significant symptoms, while the low resilience/high trauma group reported more severe symptoms. The low trauma group showed intermediate symptoms regardless of resilience level.

Schaefer et al (2007) studied 256 US missionaries in Europe and Africa, and found that the CD-RISC was one predictor of the Davidson Trauma Scale (DTS) score, a measure of PTSD severity (β=-0.20, p<0.01).

Benetti and Kambouropolous (2006) studied a group of 240 young Australian adults and college students, examining whether trait anxiety and resilience influenced self-esteem, as measured by the Rosenberg Self Esteem Scale, and if these effects were mediated by negative and positive affects respectively, as measured by the PANAS. Their results found this to be the case and the authors concluded that the impact of resilience on self-esteem is due to its effect on regulating affective experience.

A cohort of 136 information technology students was studied by Lewis et al (2008). A relation was shown between CD-RISC and the Schutte Emotional Intelligence (EI) Scale (r=0.31, p<0.01) and INTENT, a scale measuring intent to stay in the course (r=0.28, p<0.01). In linear regressions, the CD-RISC remained a significant predictor of EI, but not of INTENT, after controlling for other variables.

In Bruwer et al (2008), Cohen's Perceived Stress Scale (PSS) also correlated significantly with the CD-RISC (r=-0.28; p<0.01) as did the Beck Depression Score (r=-0.43, p<0.01).

Ito et al (2009) noted negative correlations relative to perceived stress (r=-0.58, p<0.01) and psychiatric symptoms on the K-6 scale in Japanese students (r=-0.44, p<0.01). Positive relationships (p<0.01) were observed with regard to Kobasa's Hardiness (r=0.68) and Antonovsky's Sense of Coherence (r=0.50) scales.

In veterans of OIF and OEF, Pietrzak et al (J Aff Dis, 2009) reported negative correlations between the CD-RISC and PTSD symptoms (r=-0.53, p<0.001), and depression (r=-0.57, p<0.001). In a second publication (Pietrzak et al, Depression and Anxiety, 2009), the same group noted that two of the original CD-RISC factors, personal control and positive acceptance of change, were negatively associated with depression and PTSD. In the same series of studies, the authors did not find that resilience was a predictor of perceived stigma or barrier to mental health care (Pietrzak et al, Psychiatric Services, 2009).

Giesbrecht et al (2009) found that cognitive reactivity was predictive of lower resilience four months later.

Yu et al (2009) reported that in 271 Chinese subjects who were HIV +ve, the CD-RISC was a protective factor against depression, anxiety and stress.

Among cricketers, all four subscales of the Cricket Mental Toughness Inventory (CMTI) - desire to achieve, r=0.23; resilience, r=0.73; attentional control, r=0.84; self-belief, r=0.52 - showed positive correlations with the CD-RISC (Gucciardi and Gordon, 2009).

Otto et al (2010) noted positive correlations between the CD-RISC and the Marlowe-Crowne Social Desirability, Positive Affect, Global Physical health scales, while a negative correlation was obtained against the Negative Affect Scale. Resilience accounted independently of other variables for some (2.3%) of the variance in global wellbeing.

Karairmak (2010) demonstrated significant correlations for the CD-RISC versus the Ego Resiliency Scale (r=0.68), Positive Affect Scale (r=0.69), Rosenberg Self Esteem Scale (r=0.53), and measures of optimism (Life Orientation Scale, r=0.55) and hope (Dispositional Hope Scale, r=0.68). A negative correlation was obtained relative to the Negative Affect Scale (r = -0.44).

Park et al (2010) observed a correlation between resilience and posttraumatic stress symptoms in Korean firefighters, although it did not mediate the relation between trauma exposure and PTSD, as did self-esteem.

Spinal cord injury patients demonstrated significant positive correlations between the CD-RISC and Satisfaction with Life (SWLS) (r=0.54), Inventory of Spiritual Beliefs (ISS) (r=0.35) and a negative correlation with depression (PHQ-9) (r=-0.35), and no association with Functional Independence (FIM) (White et al, 2010).

A study in Korean subjects found that the CD-RISC correlated positively with the Rosenberg Self Esteem Scale (r=0.558) and negatively with the Beck Depression Inventory (r=-0.457), Perceived Stress Scale (r=-0.319) and the Impact of Events Scale-Revised (r=-0.257) (Baek et al, 2011).

Gucciardi et al (2011) conducted a second study in 520 Australian cricketers, noting significant positive correlations for the 25- and 10-item versions of the CD-RISC against hardiness and athletic burnout. Against global hardiness, which was measured by the Personal Views Survey III-R, there were positive correlations of 0.62 and 0.56 respectively ($p<0.01$). Against the three components of the Athletic Burnout Questionnaire, correlations with the CD-RISC 25 and CD-RISC10 ranged from -0.32 to -0.46, and -0.38 to -0.40 respectively (p<0.01).

In a large community sample, the CD-RISC correlated with positive attitude towards aging as measured by the Philadelphia Geriatric Morale Scale (PGMS) (r=0.38, p<0.001) (Kavirajan et al, 2011).

CD-RISC scores correlated negatively with measures of neuroticism and negative life events, but positively with social support and extraversion in medical students (Peng et al, 2012).

The CD-RISC was used to demonstrate convergent validity with a new measure of pain (r=0.42, p<0.005) (West et al, 2012).

In a Norwegian schizophrenia sample, the CD-RISC correlated significantly with subjective wellbeing (r=0.80, p<0.01), Global Assessment of Function (GAF) (r=0.87 for the full recovery group and r=0.97 for the remission group, p<0.01) and the Global Assessment of Relational Functioning (GARF) (r=0.61, p<0.01 for all subjects) (Torgalsbøen, 2012). Regression analysis showed that the CD-RISC and GAF explained 67% of the variance in accounting for subjective wellbeing, with CD-RISC remaining a significant predictor when controlling for function.

Mansfield and colleagues (2011) studied 3,069 male Navy and Marine personnel. They found negative correlations between resilience and measures of suicidal ideation, PTSD, depression and substance use, but not with combat exposure. Resilience had a significant protective effect against PTSD and depression in both services and against suicidal ideation in Marines only.

In single African American, low income, fathers, Coates (2012) observed positive and statistically significant correlations between the CD-RISC and measures of spirituality (r=0.56), co-parenting relationship quality (r=0.33) and motivation (r=0.33), but no relationship with measures of social support, conviction history and psychological wellbeing. In a later report (Coates et al, 2013), the same group found that the CD-RISC-10 correlated negatively with the General Health Questionnaire-12 (GHQ-12), a measure of general mental health distress.

Bensimon (2012) demonstrated that resilience was positively associated with posttraumatic growth (PTG) (r=0.14) and negatively with PTSD (r=-0.13) in 500 Israeli students who had been exposed to trauma.

Greater resilience was associated with a broader range of coping behaviors in anticipation of terrorism in the Australian population (Stevens et al, 2012).

Young adults in Canada who were transitioning out of child welfare were found to show less depression and less smoking if they had higher CD-RISC scores, and also greater religious and community involvement. Resilience was independently associated with depression over and above the impact of childhood trauma (Goldstein et al, 2013).

Lee and Williams (2013) showed a significant positive correlation between the CD-RISC and measures of social support and family cohesion in 206 Korean offspring of alcoholic parents. The RISC mediated outcome (depressive symptoms), serving as the main protective factor after sense of belonging.

Among Korean patients with metastatic cancer, those with more depression or anxiety scored lower on the CD-RISC (Min et al, 2012).

Parents of children with cancer, who had lower resilience, were more likely to have sleep difficulty (OR= 5.19), to be unable to express worries (OR= 4.00), to have lower health satisfaction (OR=5.71), greater distress on the K-6 (Kessler-6) scale, as well as lower social support and more likelihood of driving under the influence of alcohol (Rosenberg et al, 2013).

In a study of 20 amputees conducted in the Netherlands, the CD-RISC correlated positively with all four scales in the WHO-QoL, and negatively with all scales in the SCL-90R (Bodde et al, 2013).

Naz & Gavin (2013) demonstrated a significant correlation with the General Health Questionnaire (GHQ) (r = 0.238) in 613 police officers from Pakistan and England, as well as with measures of coping (r = 0.291 and r = 0.567).

Adult offspring of a parent with schizophrenia were found to be unsatisfied with the quality of parenting by the affected parent, but the most resilient in the sample were those who endorsed greater support from other relatives, and greater social support in coping with difficulties (Herbert et al, 2013).

Petros et al (2013) studied a sample of 196 healthy English adults and found strong positive correlations between the CD-RISC and the Schwarzer & Jerusalem Generalized Self-Efficacy Scale, as well as significant positive correlations versus the LOT-R Dispositional Optimism Scale, the Berlin Social Support Scale, and WHO-5 Wellbeing Scale. Negative correlations were found vs the CES-D-10 Depression Scale and Spielberger Trait Anxiety Scale, and number of adolescent life stresses as measured by the Early Life Stress Inventory.

Senders et al (2014) reported significant correlations between CD-RISC score and mental health quality of life (r=0.58), adaptive coping (r=0.47), maladaptive coping (r=-0.58), perceived stress (r=-0.55), using the Brief Coping Inventory for Problem Experiences (B-COPE), Perceived Stress Scale (PSS) and Medical Outcome Study Short Form-36 (SF-36). No significant association was found between CD-RISC and SF-36 physical health quality of life.

Spies and Seedat (2014) studied South African women infected with HIV, and found a negative correlation between CD-RISC and depression as measured by the CES-D (r=-0.28), PTSD measured by the Davidson Trauma Scale (DTS) (r=-0.23) and childhood trauma (CTQ) (r=-0.22).

In a group of organ donors, Rudow et al (2014) observed significant correlations between the CD-RISC-25 and measures of purpose in life (PIL), post-traumatic growth (PTG), extraversion, agreeableness and conscientiousness, but not openness (NEO).

Wu et al (2015) found that resilience correlated significantly with posttraumatic growth in Chinese earthquake survivors.

Xie et al (2016) reported significant correlations between the CD-RISC and the Rosenberg Self-esteem scale (r=0.27), and positive affect (r=0.52) and negative affect (r=-0.26) on the PANAS, in a large sample of over 2300 Chinese military personnel. Shi et al (2016) noted a significant negative correlation (r=-0,488) between the CD-RISC-25 and SCL-90-R.

The Impact of Events Scale-Revised (IES-R), which measures PTSD symptoms, correlated negatively with the CD-RISC (r = -0.30, p = 0.02) in 56 resident physicians (McFarland and Roth, 2016).

A negative correlation (r = -0.78) was observed between the CD-RISC-25 and the Beck Depression Inventory-II (Arbour et al, 2017) in a Canadian sample with moderate to severe TBI.

Self-compassion, sense of belonging and perceived social support all correlated positively with the CD-RISC in Iranian patients with breast cancer (Alizadeh et al, 2018).

CD-RISC-25 correlated significantly with the DASS (r = -.31), PCL for PTSD (r = -.22) and Work Social Adjustment Scale (r = -.19) in New Zealand earthquake survivors (Trip et al, 2018)

CD-RISC-10:
McGlone and colleagues (2009) studied the CD-RISC-10 in 27 patients with epilepsy, using the scale in the context of validating measures of stigma. They found the CD-RISC to correlate strongly with measures of the positive aspects of stigma and with resistance to stigma. In other words, more resilient epileptic subjects either gained more from the challenges posed by the disease, or showed greater resistance to the problems of stigmatization.

Wang showed a negative correlation between the CD-RISC 10 and the Los Angeles PTSD Symptom Checklist (LASC) four months after a severe earthquake, both with respect to total score and the three PTSD subscales. Mean CD-RISC 10 scores were significantly lower in the PTSD group (20.8(7.9)) as compared to those without (26.8(6.3)) (Wang et al, 2010).

Shlomi (2010) showed positive correlations between the CD-RISC 10 and Sense of Belonging and Peer Emotional Support, and a negative correlation against the CES-D measure of depression.

In 465 Hungarian students, the CD-RISC-10 correlated significantly with the Ego Resiliency Scales (ER89 and ER11) of Block and Kremen, and the CD-RISC showed stronger correlation with aspects of resiliency reflective of stability (conscientiousness, agreeableness and emotional stability) than to flexibility (extraversion and openness), whereas for the ER scale, it was vice-versa. However, for both dimensions, the CD-RISC-10 was significantly correlated (Farkas and Orosz, 2015). CD-RISC-10 score correlated negatively with PTSD score on the PCL-C (McCanlies et al, (2014) in police officers exposed to trauma.

In 314 Spanish dental students, the CD-RISC-10 correlated positively with a measure of efficacy, and negatively with measures of depression, perceived stress, tenseness, anxiety exhaustion and cynicism (Montero-Marin et al, 2014).

Depression on the PHQ-8 correlated negatively (r = -.0.33 and r = -.0.48) with the CD-RISC-10 in a sample of injured inpatients (Rainey et al, 2014).

The CD-RISC-10 correlated significantly with PTG in Chinese university students with PTSD (r=0.53), as well as with measures of conscientiousness (r=0.41) and vitality (r=0.40) (Duan et al, 2015). A later study found similar associations between RISC-10 and Vicarious Post Traumatic Growth (VPTG) scores in ambulance and medical personnel confronted with major trauma in their work (r = 0.67, Kang et al, 2018).

A positive correlation was found for the CD-RISC-10 relative to the Rosenberg Self-esteem Scale (r=0.336), and negative correlations versus the PHQ-9 (r=-0.316) and the GHQ-12 (r=-.0242) in Nigerian nurses (Aloba et al, 2016).

In US athletes, the CD-RISC-10 was negatively related to somatic and cognitive anxiety, and disrupted concentration (Gonzalez et al, 2016).

A significant correlation (r=0.68 and r=0.66, p<0.001) was observed relative to the RS-25 and RS-14 of Wagnild in 412 US college students (Madewell and Ponce-Garcia, 2016).

A negative correlation of r = -.0.63 was found between the CD-RISC-10 and PSS-10 in Danish hospital workers (Lauridsen et al, 2017).

CD-RISC-2:

Area residents were studied after the Deepwater Horizon oil spill, and the CD-RISC 2 was related to levels of depression and anxiety, serving as an independent predictor of post-disaster symptoms (Osofsky et al, 2011). In Korean firefighters and rescue workers, the CD-RISC-2 correlated positively with SF-36 mental and physical health and Global Assessment of Function (GAF), while a negative correlation was obtained against the Beck and Hamilton Depression and Anxiety Scales, the Montgomery-Asberg Depression Scale, the Clinician Administered PTSD Scale (CAPS), and two self-ratings of PTSD, the IES-R and the PDS (Jeong et al, 2015). Among 40 patients with chronic obstructive pulmonary disease who were studied in Colombia, the CD-RISC 2 correlated with a measure of mental health ($r=0.320$, $p<0.05$) (Vinaccia and Quiceno, 2011).

A highly stressed sample of primary care patients referred to behavioral counselling was studied by Langhinrichsen-Rohling et al (2017). The CD-RISC-2 correlated with PTSD ($r=-0.40$, $p<0.001$), stress ($r=-0.21$, $p<0.05$), depression ($r=-0.52$, $p<0.001$), suicidality ($r=-0.38$, $p<0.01$) and anxiety ($r=-0.40$, $p<0.001$).

Tsigkaropoulou et al (2018) reported that the CD-RISC-2 correlated significantly with the PSS ($r= -0.60$), GHQ ($R= -0.59$), the GAF ($r = 0.28$) and WHO-QOL ($r = 0.49$) in a Greek population.

Spirituality

Some have argued that a relationship exists between resilience and spiritual beliefs. Wilks (2006) hypothesized that the greater the degree of intrinsic spirituality, the greater would be resilience. His results in a group of 298 Alzheimer's disease caregivers showed a correlation between Hodge's Intrinsic Spirituality Scale (ISS) and the CD-RISC ($r=0.53$, $p<0.001$). Later, Wilks and Vonk (2008) reported that private prayer mediated (enhanced) resilience, while caregiver burden reduced resilience, in the same sample.

Bitsika et al (2010) failed to show a relationship between the spirituality factor and measures of depression and anxiety.

Karairmak (2010) demonstrated that a factor-defined spirituality scale correlated significantly with two other CD-RISC factors (r=0.32 and 0.33).

White et al (2010) demonstrated a correlation (r = 0.35) between the CD-RISC and score on the Inventory of Spiritual Beliefs.

In a National Spiritual Beliefs Survey using the East-West Spiritual Beliefs Scale (EWSBS), Davidson and colleagues failed to demonstrate a relationship between CD-RISC score and those who subscribe to beliefs in karma and reincarnation, using an early 11-item subscale, which has not subsequently been developed further (Davidson et al, 2005). In line with Wilks (2006), Lee et al (2008) demonstrated that CD-RISC score was a significant predictor of agreement with traditionally Western spirituality ($\beta=0.08$, $p<0.0001$), but not with spiritual beliefs of Eastern heritage, suggesting the relationship between resilience and spirituality may be complex. In a third report of their US National Survey, Connor et al (2003) showed that in the 605 survivors of violent trauma, CD-RISC, along with persistent anger and spiritual beliefs, predicted mental and physical health status (OR=0.91, 95% CI = 0.88,0.94 and OR=0.80, 95% CI =0.76,0.84). When looking at predictors of PTSD severity on the DTS, the CD-RISC score ($\beta=-0.33$, $p<0.001$), with anger and spiritual belief, predicted symptom severity, such that for every 10-point increase on the CD-RISC, there was a 6-point drop (reduction of severity) on the DTS.

The notion that spiritual or religious beliefs are an essential component of resilience has been questioned, and some studies of the CD-RISC have failed to replicate such a factor. In part this may be due to the limited number of relevant questions in the scale, and also it may be affected by cultural factors. Thus for example, in one Chinese study (Yu et al, 2007), no such factor emerged in the CD-RISC, while in another, some elements emerged as one of two factors in children who survived an earthquake (Fu et al, 2013), and a study in Singapore derived a spirituality factor on the SYRESS (Lim et al, 2011). A study from Korea found that lower spirituality was the leading predictor of poor resilience and depressed and anxious outpatients (Min et al, 2012).

A study of Iranian university undergraduates showed that resiliency and spiritual intelligence, as measured by the Abdollah-Zadeh Spiritual Intelligence Scale, were positively correlated, and that the latter independently of mental health predicted RISC score ($R^2=0.18$, $p<0.01$)

(Ebrahimi et al, 2012). The same measure of spirituality was found to correlate positively with the CD-RISC-25 score a group of 13 Iranian national hockey players (Dodman and Moradi kor, 2015)

Refugees from the Chinese mainland to Hong Kong showed a significant correlation between their scores on the Zubrick Family Resilience Scale and the CD-RISC ($r=0.35$, $p<0.001$) (Yu et al, 2013a).

Coates et al (2013 studied 127 low income African-American men and found the CD-RISC-10 to correlate positively with the Religious Wellbeing scale.

Davidson and Lee studied the relationship between resilience and forgiveness in a national survey of the US population (unpublished data, 2015). Using the CD-RISC-2, they found that those who had experienced personal violence ($n=239$), and who had forgiven the perpetrator scored higher (6.7 (1.3)) than did those who had not forgiven the person responsible (6.2(1.5)), $p=0.007$).

In survivors of a Haitian earthquake, spiritual belief and religious practice related to level of resilience. Those who believed that God was responsible for the event had higher CD-RISC score (77.3) than did those without such belief (65.3), and those who practiced the Voodoo religion also had higher scores (72.5) compared to non-practitioners (64.6) (Blanc et al, 2016).

Aloba et al (2016) noted a significant negative correlation between the CD-RISC-10 and the Religiosity Orientation Test ($r = -0.184$) in Nigerian student nurses. The authors interpreted this finding as indicating a relationship between greater resilience and greater religious belief or practice, and considered it to be a form of construct validity for the CD-RISC.

Cahyani and Akmal (2017) found that spirituality (i.e. purpose, connectedness and sense of a transcendental power) was associated with greater resilience and better handling of difficulties among students preparing their final papers.

Lower scores in the spirituality subscale was found in US veterans with suicidal ideation (Elbogen et al, 2017).

Chinese medical and ambulance personnel with higher RISC-10 scores were found to exhibit higher scores on the spirituality subscale of the Vicarious Posttraumatic Growth Inventory (VPTGI) (r = 0.63) (Kang et la al, 2018).

CD-RISC correlated positively with the Centrality of Religiosity Scale (CRS) (r = 0.194) in 152 Greek patients with breast cancer, while measures of depression and anxiety failed to do so. The authors concluded that religious beliefs predicted resilience (Fradelos et al, 2018).

A general population study in Norway showed a positive correlation (r = 0.18, p < 0.01) between the RISC-2 and general meaningfulness, and a negative correlation (r = - 0.36) against crisis in meaning, using the Sources of Meaning and Meaning in Life Questionnaire (Sørensen et al, 2019).

Spiritual growth was a predictor of resilience in caregivers of US servicemen and women, and correlated at r = 0.697 with the Health-Promoting Lifestyle Profile (Dreer et al. 2019).

Medical students who received life coaching demonstrated a significant increase in the spirituality and control factors of the RISC, but not in total score (Cameron et al, 2019).

Spirituality on the FACIT-Sp-Ex scale correlated with CD-RISC-25 score (r = 0.712) in Australian dyad-pair subjects with spinal cord injuries and their families (Jones et al, 2019).

In a Greek national sample (n=1754), RISC score was higher in religious believers (94.2) than non-believers (89.5), and the spiritual influences factor correlated significantly (r=0.64 and 0.56) with the two factors on the Nonreligous-Nonspiritual scale (Polemikou et al, 2019). However, a scoring range of 40-125 was used, with a mean of 92.5, making obscure the meaning of the score relative to official 0-100 range.

Australian college students with disabilities, who showed a “spirituality-dominant” profile on factor analysis, showed lower optimism and well-being than those with an engaged-resilient” profile (Ganguly and Perera, 2019).

Support and Social Relationships: Perceived social support was found to correlate significantly with the CD-RISC in studies of the Multidimensional Scale of Perceived Social Support Scale (MSPSS) by Brüwer (2008) (r=0-36 to 0.42 for the four subscales) and in the study by Brown (2008) (r=0.11 to 0.22). In Brown's study, a hierarchical multiple regression analysis to predict resilience showed that, of all 11 variables in the model, only cultural pride reinforcement and support from a special person predicted CD-RISC score. A study of unemployed men by Phillips (2011) demonstrated a significant correlation (r=0.57, p<0.01) between the CD-RISC and the MSPSS.

Clauss-Ehlers and Wibrowski (2007) found the CD-RISC to correlate significantly with Confidant Availability (r=0.24, p<0.05) and Peer Availability (r=0.36, p<0.01), but not with measures of Supervisor Availability or Adequacy, or Peer Adequacy. Ito et al (2009) found positive correlations between the CD-RISC and Furukawa's social support scales (r=0.23 and 0.24, p<0.01).

In veterans of OIF and OEF, Pietrzak et al (J Affective Disorders, 2009) reported positive correlations between CD-RISC score and unit support (r=0.40, p<0.001), post-deployment social support (r=0.51, p<0.001), and negative correlations versus psychosocial difficulties (r=-0.40, p<0.001). Path analysis suggested that resilience fully mediated the association between unit support and depression and PTSD.

In 495 earthquake survivors followed up for five years, Ni et al (2015) observed that different aspects of social support, as measured by the Social Support Rating Scale, predicted resilience in men and women – in the former, support-seeking behaviors were predictive, while in the latter, it was subjective social support.

The CD-RISC-25 correlated significantly with social support (r=0.47) and social skills (r=0.44) in 412 US college students, while the CD-RISC-10 correlated at levels of r=0.39 and 0.34 respectively (Madewell and Ponce-Garcia, 2016), using Ponce-Garcia's Scale of Protective Factors to measure social support and skills.

Gaddy and associates (2016) observed that, in 132 US military personnel, there was a significant correlation (r = 0.41) between CD-RISC score in subordinates and their perception of authentic leadership on the part of their supervisors, as defined by self-awareness, moral compass, enhanced information processing and relational transparency leading to self-development.

In a sample of 294 subjects who were exposed to Hurricane Katrina and the Deepwater Gulf Oil Spill, RISC-10 scores correlated significantly with scores on a community support scale assessing caring/connection, provision of resources, transformative potential and information/communication (Lee et al, 2017).

A Spanish sample of 294 caregivers demonstrated a significant correlation (r = 0.228) between the CD-RISC-10 and the Duke-UNC Functional Support Scale (Blanco et al, 2017).

Divergent Validity: A report by Connor and Davidson (2003) noted the absence of a significant correlation between the CD-RISC and a measure of sexual function in two analyses (r=-0.34 and r=-0.30), in keeping with prediction. Pietrzak et al found no relationship between CD-RISC and exposure to combat in their National Guard cohort (r=0.04, ns), which is as would be expected: exposure to combat in the military is unlikely to be substantially determined by resiliency. Shlomi (2010) showed no relationship between the CD-RISC 10 and Childhood Socioeconomic Position as assessed by the FAS. In school leavers, Stephenson (2012) found no association between resilience and economic self-sufficiency. Kilic found no relationship between CD-RISC 10 score and the extent of spinal cord damage or diagnosis in a cohort of 60 spinal cord injured patients (Kilic et al, 2013). No association was found between resilience and fetoplacental blood flow in a cohort of South Africa women attending an obstetrics clinic (Roos et al, 2014). Although a relationship was expected, and found for, antenatal anxiety and blood flow, the case for expecting such a finding for resilience was weaker according to the authors.

A study of the CD-RISC-2 found no relationship (in accordance with prediction) between the scale and a measure of alcohol consumption, the AUDIT (Jeong et al, 2015). The same was true in an Australian study of university students with respect to the CD-RISC-10 and the AUDIT-C (Ehrich et al, 2017).

Among Chinese women with breast cancer, no relationships were found between CD-RISC score and a family history of breast cancer, religion, stage of cancer or time since diagnosis (Wu et al, 2016).

Decroos et al (2017) developed a measure of team/collective resilience (CREST), and found divergent validity for the CREST relative the concept of individual resilience in the CD-RISC-10 in two samples of British and Belgian athletes (n=345 and n=75).

Lee et al (2017) showed no correlation between the CD-RISC-10 and cumulative exposure to disaster.

In Korean chemical workers, no correlation was found between the CD-RISC-10 and level of exposure to a toxic chemical, hydrofluoric acid (Shin et al, 2018).

CD-RISC: Predictive Validity, Treatment and Change over Time

Predictive Validity & Sensitivity to Change: Numerous studies have used the CD-RISC to assess change during treatment with medication, psychotherapy, or from some other form of intervention, such as instruction in stress-management or resilience-building, which are summarized in chronological order in Tables 11a and 11b. Some studies have also examined whether the baseline CD-RISC predicts treatment outcome or health status. One study evaluated a cut point to distinguish between depressed and non-depressed subjects.

Table 11a. Changes in CD-RISC 25 Associated with Intervention or Treatment

First author	N	Interventions	Pre and post scores	% change	ES *or p value	Sample	Country
Davidson (2005)	92	Antidepressants, CBT	56.0 67.6	21	ES = 0.72	PTSD	USA
Davidson (2006)	224	Venlafaxine Placebo	55.2 69.0 53.4 63.2	25 17	ES = 0.35 Ven vs. Pbo	PTSD	USA
Clauss-Ehlers (2007)	95	Stress management	73.1 76.2	4	ES = 0.21	College freshmen	USA
Dodding (2008)	20	Group treatment Control	39.0 53.9 62.8 64.8	38 3	P<0.005	Depressed and healthy control groups	USA
Steinhardt (2008)	64	Stress management	67.7 75.3 70.6 70.6	11	P<0.01	College students	USA
Steinhardt (2009)	16	Diabetic management counseling	83.2 84.1	1	ES = 0.10	Diabetics	USA
Lavretsky (2010)	40	Escitalopram Placebo	60.2 76.2 66.6 68.4	27 3	ES = 0.47 Esc vs. Pbo	Depression	USA
Vetter (2010)	94	Post-trauma counseling	70.1 73.9	5	ES = 0.29	Children who survived Beslan terrorist attack	Russia
White et al (2010)	42	Spinal cord injury rehabilitation	82.2 81.9 82.6	None	NS	Treatment not specific to resilience	USA
Jafari (2010)	25	Lifestyle training vs. Waitlist control	56.3 69.1 52.9 53.8	23 2	P<0.001	Males with alcohol and drug misuse	Iran
Lavretsky (2010 and 2011)	37	Tai Chi Control	60.5 71.5 56.9 65.5	18 15	P<0.05	Late life depression	USA
Sood (2011)	40	Stress management Waitlist	69.6 79.4 68.0 67.2	14 0	ES = 1.16	MD employees	USA
Thabet (2011)	99	Community treatment	81.9 84.4	3	NS	Women abuse survivors	Gaza
Loprinzi (2011)	20	Stress management Waitlist	73.6 81.1 78.2 82.1	10 5	P<0.05	Breast cancer survivors	USA
Stephens (2012)	61	Resilience training vs. Control	75.2 78.0 74.5 75.7	4 2	P<0.05	Nursing students	Australia
Sharma (2012)	33	Stress management	73.4 81.8	11	P<0.001	Medical center employees	USA
Rogchanchi (2012)	24	Rational emotive therapy vs. Waitlist	56.6 72.7 57.2 59.1	28 4	P<0.001	Student counseling sample	Iran

Naylor (2012)	12	Paroxetine Placebo	73.8 74.6 80.1 79.2	1 0	NS	OEF/OIF veterans with sub-threshold PTSD	USA
Yu (2013b)	54	Resilience counseling	50.7 59.4	17	ES = 0.51	Village residents HIV + and HIV -	China
Chen et al (2014)	32	CBT Support No treatment control	51.5 70.8 49.3 70.1 52.7 53.1	36 43 1	Not given	Adolescent Sichuan earthquake survivors who lost a parent	China
Peng et al (2014)	30 30	Penn Resil Pgm Control Penn Resil Pgm Control	58.5 69.3 59.0 58.3 87.0 87.1 86.5 85.9	18 0 0 0	P<0.01 NS NS NS	Medical students low resil Med students hi resil	China
Krystal et al (2014)	20	Tiagabine	62.0 70.4	14	ES = 0.40	PTSD with sleep problems	USA
Sood et al (2014)	26	Stress mgt and resil training (SMART)	70.0 73.0	4	P<0.05 within group	MD radiologists	USA
Gowenlock (2014)	24	Meditation	75.8 80.8 84.4	11	P<0.001 within group	Military personnel at combat support hospital	USA
Yu et al (2014)	183	Resilience counseling Information Control	58.2 62.6 57.7 56.3 59.3 59.1	7 0 0	ES=0.17	Refugees with adjustment difficulties	China
Hoseiny et al (2015)	60	Methadone maintenance(MM) MM with CBT	38.1 40.1 37.0 64.4	5 73	P<0.05	Opiate dependent subjects	Iran
Guest et al (2015)	88	CBT Control	74.1 71.2 77.5 75.4	Reduction in score		Spinal cord injury	Australia
Rogers (2016)	43	Single 90 minute educational intervention workshop	77.3 74.1	Decrease in score	P = ns ES= - 0.33	Healthcare professional students	South Africa
Bird et al (2017)	64	Skill building workshops	72.5 68.6	Decrease in score	P = 0.03	Internal medicine interns	USA
Jeon et al (2017)	10	EMDR 8 sessions	50.0 57.6	15.2	P < 0.01 ES = 0.30	Survivors of ferry boat sinking	Korea
Jung et al (2017)	42 45	On-line mind-body training program vs wait list control	54.5 59.2 54.0 51.7	9% ↑ 4%↓	P<0.000	Hospital employees	Korea
Werneburg et al (2018)	137 119	Resil training pgm Trt completers	64.8 75.4 65.3 78.5	16 20	ES= 1.0 ES= 1.2	Heathcare employees	USA

Ameen (2018)	143	20 sessions of community-oriented psychosocial support	54.7 70.2	30% ↑	Not given	Traumatized Iraqi adolescents aged 12-17	Iraq
Camardese et al (2018)	32	Two kinds of psychosocial Rx	RISC-25 Scores not given	Increased score pre to post	P<0.05	Bipolar disorder	Italy
Zurita-Ortega (2018)	47	Video game Rx	3.00 3.14	5%	P=0.001 ES=0.42	University students – health indicators	Spain
Eicher et al (2018)	41 45	Low intensity Rx High intensity Rx	11 of 41 17 of 43	Increase of 5 or greater	NS	Cancer patients	Switzerland
Kreutzer (2018)	160	Resil Adj Interv WL control	?	?	RAI > WL ES = 1.03	TBI	USA
Burton (2019)	10 10	Equine Rx Control	55.7 63.4 57.0 61.8	14% 8%	NS	Veterans with PTSD	USA
Glass (2019)	39	Expressive writing	64.3 74.2	15%	P=0.0005 ES = 0.75	Recent history of trauma	USA
Adibsereshki (2019) & Hatamizadeh (2019)	61 61	Resil Rx Program Control	46.2 65.9 42.8 46.1	43 8	P<0.001 ES = 1.92	Adolescents with hearing loss	Iran
Franco et al (2019)	36	Flow meditation WL control	39.9 49.1 41.0 39.7	23% ↑ 3% ↓	P = 0.004	Women with breast cancer	Spain
Zhou et al (2019)	66 66	Cyclic adj training Control	57.7 90.0 58.2 63.1	56% 8%	P<0.001	Breast cancer patients post surgery	China

- ES= Effect Size
- NS= Not Significant
- P= Probability

Table 11b. Changes in CD-RISC 10 and CD-RISC 2 Associated with an Intervention

First author	RISC	N	Interventions	Pre and post	% change	ES or p value	Sample	Country
Davidson (2008)	10	224	Venlafaxine vs. placebo	20.5 27.0 19.9 24.2	32	ES = 0.34	PTSD	USA
Davidson (2008)	2	224	Venlafaxine vs. placebo	4.61 5.68 4.52 5.15	23	ES = 0.32	PTSD	USA
Vaishnavi (2007)	2	20	Mirtazapine vs. placebo	Not given	Not given	ES = 0.46	PTSD	USA
Christensen (2011)	10	41	Rehabilitation	31.4 32.8	4	Zero	Traumatic injury	USA
Rosenberg et al (2018)	10	48 44	PRISM Usual care	28 31 28 27	11 0	ES = 0.4	Adolescents with cancer	USA

Leventhal et al (2015)	10	2,308	School-based resilience course	20.8 25.7 22.2 23.5	24 6	P<0.001	Rural schoolgirls	India
Tan et al (2015)	10	64	Resource Enhancement and Activation Program vs Control	26.3 28.1 26.1 25.5	7 0	P=0.07	Older community residents	Singapore
Notario-Pacheco (2014)	10	208	Treatment as usual	Results divided into non responder (NR) and responder (R) groups	11%↓ 10%↑	ES = 0.00 NR ES = 0.36 R	Fibromyalgia	Spain
DeManincor (2016)	2	47 54	Yoga Waitlist	5.13 5.74 5.11 5.07	12%	ES = 0.49 p<0.01	Anxiety and depressive symptoms	Australia
Moffett & Bartram (2017)	10	105	Teaching module	27 (IQ 25-30) pre 29 (IQ 26-32) post	7%	ES = 0.28 P<0.001	First year veterinary students	England
Gifford et al (2019)	10	53	Pre training Post training	32.6 29.2	10% ↓	P<0.001	Women in UK army	England
Lewis et al (2017)	2	339 358	Collab care Usual care	5.8 6.2 5.8 5.7	7%	P<0.05	Subthreshold depression in primary care practice	England
Curtis et al (2017)	10	17	Iyengar yoga	30.7 32.6	6%	NS	Spinal cord injury	USA
Deen et al (2017)	10	5	Rational Emotive Therapy	16.8 22.4	32%	Not tested	Elite squash playing athletes	Malaysia
Slatyer et al (2017)	10	65 26	Mindfulness care (MSCR) Wait list (WL)	28.3 29.5 27.5 27.3	4% 0	NS	Nurses	Australia
Joyce (2019)	10	60 83	Mindfulness CTRL	28.4 31.0 28.4 26.5	9% 6% ↓	ES = 0.73 P < 0.001	First responders	Australia
Harrer et al (2018)	2	75 76	Internet/App Rx Wait list control	4.80 5.56 4.79 5.17	16% 8%	ES = 0.26 P = 0.08	Stressed university students	Germany
Tolentino & Suba (2018)	10	15	Group Rx	13.6 25.8	90%	P < 0.005	Grade 7/8 students who were bullied	Philippines
Durbin (2019)	2	575	Treatment	5.1 5.6	9%	Not given	Homeless with mental illness	Canada

Brandalise (2019)	10	50	Psychotherapy	22.5 30.2	34%	ES = 0.76	Temporal lobe epilepsy	Brazil
Sullivan (2019)	2	59	Treatment	6.31 6.71	6%	P = 0.003	Oncology nurses	USA
Klibert (2019)	10	48	Gratitude Rx Control	31.6 28.1	No baseline	P < 0.05	University students	USA
Kreutzer (2019)	10	83 77	RAI Tx Wait list	21.1 28.4 23.4 23.7	34% 1%	ES = 1.03 P< .001	TBI patients	USA
Lau (2019)	10	48 44	PRISM trt Usual care	29 28	72% Response 47% RR		Cancer patients	USA
Toprak (2019)	10	10	Counselling	25.7 24.7		No effect	Cystic fibrosis	USA
Akeman (2019)	10	126 122	Resil prgm Control	29.0 29.1 29.0 28.5		No difference	College students with depression	USA
Rosenberg (2019)	10	32 32 30	Indiv trt Group trt Usual care	28.6 29.6 27.0 26.0 30.0 28.0		P = 0.04 ES = 0.9	Parents of children with cancer	USA
Dyrbye (2019)	10	44 44	Coaching Control	31.0 32.3 30.6 31.2		P = 0.04	Mayo Clinic MDs	USA

CD-RISC Scores and Change in Response to Intervention

In their original report describing the CD-RISC, Connor and Davidson (2003) showed a significant relationship between CD-RISC and degree of improvement on the Clinical Global Improvement (CGI) scale, whereby greater improvement was associated with greater change on the CD-RISC (F=3.42, *df* 2, p<0.05).

A subsequent series of uncontrolled studies of antidepressants and cognitive behavioral therapy have also shown that CD-RISC scores increase over time in patients with PTSD (Davidson et al, 2005). In this analysis, the CD-RISC item that assessed the capacity of having a sense of humor under stress was a strong predictor of remission, and optimism/tenacity also predicted good response.

A double-blind, placebo-controlled trial of venlafaxine-XR in posttraumatic stress disorder has shown that the drug produces significantly greater improvement on the CD-RISC than does a placebo (Davidson et al, 2006a), with an effect size (ES) of 0.35, which was greater than the ES of all other measures (e.g., PTSD, depression, quality of life) that were used in the trial.

A second double-blind trial of venlafaxine-XR, sertraline and placebo, which overall produced weaker treatment effects than the first study, failed to show significant improvement on the CD-RISC for drug vs. placebo (Davidson et al, 2006b). A more detailed analysis of the first trial (Davidson et al, 2006a) showed that the drug produced improvement on many individual items in the scale (Davidson et al, 2008), including those which reflect a sense of meaning/purpose, tenacity, hardiness, active coping and adaptability. The effect size statistic for these items ranged from 0.41 to 0.35, which are of meaningful size for individual item change.

Studies by other groups have also demonstrated that treatments can improve resiliency, as measured by the CD-RISC, and/or that baseline CD-RISC serves as a predictor of outcome.

Clauss-Ehlers and Wibrowski (2007) studied a group of high school graduates transitioning to college, and reported mean (sd) CD-RISC scores of 73.1 (14.1) before a preparation course, and as they predicted, an increase to 76.2 (15.3) afterwards.

Steinhardt et al (2008) assigned 30 college students to a four week resiliency training course, and compared them to matched controls. Between pre- and post-treatment, CD-RISC scores increased from a mean of 67.7 (10.0) to 75.3 (8.4) in the treated group, while the controls showed no change (70.6 (12.3) to 70.6 (11.7). In a later study, the same group demonstrated a change in resilience which correlated with change in growth ($r=0.67$, $p<0.001$) after psychoeducation was given to 31 undergraduates (Dolbier et al, 2009).

In Dodding’s study of group therapy for couples (2008), depressed/anxious patients showed a 38% increase in score after group therapy, changing from 39.0 to 53.9 ($p<0.005$). Their asymptomatic partners failed to show any change (62.8 to 64.8, ns).

A study of 16 African American diabetics found no increase in CD-RISC score after a counseling program, with the pre and post-treatment means being 83.2(8.5) and 84.1(8.4) (Steinhardt et al, 2009). However, the baseline scores were already in line with normative US population scores.

Lavretsky et al (2010) conducted a double-blind trial of escitalopram, which is an antidepressant of the SSRI class, in 40 depressed subjects who were caregivers to family members with Alzheimer’s disorder. They found that the drug (n=20) produced markedly greater improvement on resilience than did placebo (n=20), with an effect size (ES) of 0.47. Baseline CD-RISC scores for the drug and placebo groups were 60.2 (16.7) and 66.6 (17.0), and at post-treatment the extent of change was +16.2 (17.3) and +1.8 (6.9). Thus with escitalopram, CD-RISC score increased over baseline by 27%.

Vetter et al (2010) provided a resilience-enhancement intervention to Russian schoolchildren following a terrorist attack on the Beslan School that left many dead and injured. The mean score increased from 70.1 (14.8) at baseline to 73.9 (11.5) at follow-up, with an effect size of 0.29. The subgroup of children who had been held hostage (n=46) showed a greater increase, from 65.6 (16.0) to 72.3 (13.5), with an effect size of 0.45. The non-hostage group (n=48) showed no change (74.5 at baseline, 75.3 at follow-up). The groups who sustained greatest loss and/or physical injury showed large improvements in resilience (effect sizes of 0.65 and 0.54 respectively).

Instruction in coping skills was associated with significantly increased CD-RISC at the end of treatment of 13 Iranian males with substance dependence, as compared to a wait-list control group of 12 subjects. Pre and post scores in the two groups were, respectively, 53 and 70, vs. 52 and 53 (Jafari et al, 2010).

Spinal cord injury patients who were undergoing rehabilitation showed no change in CD-RISC scores at times 2 and 3, despite improvement in other measures, e.g., depression (White et al, 2010). Another sample of traumatic injury survivors failed to show increase in resilience (and self-efficacy), although depression did improve over a 12 week period of rehabilitation (Christensen, 2011).

Tai chi treatment was found to produce enhanced resilience when added to escitalopram in older depressed subjects (n=36), which was significantly greater than the effect of a control treatment, health education (n=37). Final scores on the CD-RISC were 71.5 (9.5) and 65.5 (14.3) ($p<0.05$) (Lavretsky and Irwin, 2010; Lavretsky et al, 2011).

Sood et al (2011) randomized a group of 40 medical doctors with job-related stress to either a course of stress management and resilience training, referred to as SMART (n=20), or to a waiting list control (n=20). At baseline, CD-RISC scores were 69.6 and 68.0 respectively. At the end of the study, they were 79.4 and 67.2, with an ES of 1.16 in favor of SMART. Of the five measures used, the ES for resilience enhancing effects of SMART was the second highest, thereby speaking to a substantial treatment effect as detected by the CD-RISC. The authors also pointed out the final post treatment score of 79.4 brought their sample into line with the general population norms as reported by Connor and Davidson (2003).

Thabet and colleagues (2011) found a modest, but statistically non-significant increase in CD-RISC in 99 Gazan women who had been exposed to domestic violence and took part in a counseling program. It was noted that, despite surviving marked trauma, their baseline scores on the CD-RISC were similar to the mean general population score in the US, suggesting that they already demonstrated a high level of resilience.

Loprinzi and colleagues (2011) administered SMART to survivors of breast cancer, in a single-blind randomized trial. Relative to the wait-list control, SMART resulted in an increase of CD-RISC score from 73.6 to 81.1 vs. 78.2 to 82.1 ($p<0.05$).

A Korean study of 178 depressed patients found that the CD-RISC predicted likelihood of response to antidepressant drugs (Min et al, 2012). The baseline scores in non-responders (NR) was 46.2 (20.8), while in responders (R) it was 52.7 (20.1) ($p=0.04$). ROC analysis yielded an AUC of 0.607, which while low, is statistically significant and provided a cut off score of 49.5 to detect R vs. NR group assignment. Sensitivity was 57% and sensitivity 65%, both of which would be considered low. In those with low trait anxiety and high resilience, response was more likely (65%) than in the low anxiety/low resilience group (25%). In those with high trait anxiety, response rates were low in both resilience groups (30% and 29%).

Stephens (2012) found that CD-RISC scores increased significantly in a group of adolescent nursing students who received a Twitter-based educational package to promote resilience and sense of support and to decrease perceived stress. The intervention group showed greater resilience post-treatment, but there was no benefit on perceived stress of support. RISC scores increased from 75.2 to 78.0, while the controls changed from 74.5 to 75.7. At longer term follow up, the gains were lost.

Yu and colleagues (2012) demonstrated that a resilience focused intervention among rural Chinese HIV +ve subjects led to an increase in the CD-RISC score after treatment.

Sharma et al (2012) administered the CD-RISC pre- and post-stress management training in 33 medical center employees. The mean score increased over 12 weeks from 73.4 (10.8) to 81.8 (13.8).

Rational emotive therapy (RET) with art therapy (n=12) showed greater increase in CD-RISC over time than did a wait-list control (n=12) in a group of 24 Iranian subjects. The treatment group pre and post scores were 56.6 and 72.7, compared to 57.1 and 59.2 for the controls (Rogchanchi et al, 2012). Another study of RET in five athletes showed a 32% in CD-RISC-10 score from pre- to post-treatment (Deen et al, 2017).

A small double-blind placebo-controlled trial of paroxetine in sub-threshold PTSD failed to demonstrate benefit on any measure, including the CD-RISC (pre and post scores: 73.8 and 74.6 for drug vs. 80.6 and 79.2 for placebo) (Naylor et al, 2012).

Hazardous waste operations and emergency response workers who had undergone training were found to show significantly lower resilience (75.0) than a group who had not been trained (78.5); they also showed more sever PTSD symptoms (Calcote et al 2013). The authors were surprised to find this difference and offered some possible reasons, including the possibility that training was not well conducted. Importantly, no data were presented on the pre-treatment scores to observe change from the resilience training.

CBT given to bereaved adolescents following an earthquake was associated with significantly greater increase in resilience than was a no treatment control (Chen et al, 2014). Peng and colleagues (2014) found that the Penn Resiliency Program increased resilience more than in a control group in Chinese medical students who entered the study with low RISC scores (mean 58-59), whereas in those with high baseline resilience (86), there was no improvement in either treatment group.

An open-label study of tiagabine in PTSD by Krystal et al (2014) revealed an increase of 14 points from pre- to post-treatment, with an effect size of 0.40.

Meditation practiced twice daily for eight weeks lead to improved resilience (8-point increase), depression, anxiety and perceived stress in 21 military medical personnel (Gowenlock, 2014).

A study of CBT add-on treatment for subjects with spinal cord injury failed to find any benefit on the CD-RISC, or any other measure of outcome (Guest et al, 2015).

A school-based resilience curriculum resulted in a 24% increased score on the CD-RISC, compared to 4% in controls. The sample of over 2000 rural Indian adolescents was large (Leventhal et al, 2016).

Rogers (2016) did not find any increase in resilience among South African clinical associate students after a single workshop.

On-line mind-body training proved more effective than wait list control in 87 Korean hospital employees (Jung et al, 2017).

A sample of displaced Iraqi adolescents showed a 30% increase in RISC-25 score after 20 sessions of community-oriented psychosocial treatment (Ameen, 2018).

CD-RISC-10 & CD-RISC-2

Ninety psychology students enrolled in a positive psychology course at the Indian Institute of Technology, and after completing the program, there was a significant increase in score on the CD-RISC 10, from 36.5 (4.7) to 38.1 (4.9) (Singh and Choubisa, 2009). It is noted that these scores are several points higher than those found in other publications, and the explanation is not clear.

PRISM (Promoting Resilience in Stress Management) lead to a greater increase in RISC score than did UC (Usual Care) in adolescents with cancer, at an ES = 0.4 (Rosenberg et al, 2018). Notario-Pacheco et al (2014) observed an effect size of 0.36 on the CD-RISC-10 for fibromyalgia subjects who had responded to treatment according to the FIQ, while in non-responders, the ES was 0.00.

A small community study in Singapore showed changes associated with a resource enhancement program that was greater than in a control group, to a level that just failed to meet statistical significance, using the CD-RISC-10 (Tan et al, 2015).

In women undergoing basic military training, there was a paradoxical drop in RISC-10 score, attributed to the authors as due to fatigue (Gifford et al, 2019).

Prediction of Psychological Outcome

In 102 patients with depression, Camardese and colleagues (2007) demonstrated that baseline CD-RISC mean (sd) scores were significantly higher in eventual remitters to treatment than in those who failed to remit: 53.3 (15.2) vs. 41.2 (19.6). Predictive validity for the CD-RISC has been further demonstrated in PTSD and depression. In 687 patients with PTSD, the total CD-RISC score at baseline (pre-treatment) was an independent predictor of remission, after controlling for the effect of other predictors such as PTSD severity (Davidson et al, 2006c; Davidson et al, 2012): for every 1-point increase in CD-RISC score at baseline, the odds of achieving remission increased by 2.7%. The CD-RISC also was found to be related to deep learning and problem-centered coping strategies in Spanish undergraduates, and the three variables all predicted academic achievement (de la Fuente, 2017). Torgalsbøen et al (2018) found that higher resilience was predictive of better recovery in schizophrenia. In a German study of a small cohort (n=17) of acutely traumatized subjects, the 1-month post-trauma CD-RISC predicted the likelihood of developing PTSD at 6 months and was considered to serve as a potentially useful discriminator (Krähenmann, 2008). In a later German study, lower resilience was found to predict stress from stigma related to mental illness and to avoidant coping in this regard (Schibalski et al, 2017). Laird and colleagues (2018) reported that baseline RISC score predicted response and remission in geriatric patients with MDD who were enrolled in a three-arm trial of antidepressant drugs. Specifically, for every increase in 20 points of the baseline score, the odds of reaching remission increased by 1.98 – a nearly twofold greater likelihood of remission, and of the four factors they derived, accommodative coping items were most predictive of remission (OR = 1.41).

The shorter forms of the CD-RISC also predict response to treatment and reflect differences in treatment, as well as demonstrate a treatment's ability to improve resilience in short-term therapy (Davidson et al, 2008). The 10-item scale served as a significant predictor of remission and improvement in PTSD over 12 weeks of treatment with either venlafaxine-XR or placebo (Davidson et al, 2012). The 2-item scale also predicted outcome in the same series, as well as detecting greater change after treatment with mirtazapine than placebo, at a moderate effect size of 0.46 (Vaishnavi et al, 2007). Joyce et al (2018) observed that Australian paramedics with higher RISC-10 scores were less likely to develop PTSD, and Wild found that London ambulance crew were more likely to develop PTSD in the presence of low resilience (Wild et al, 2016).

Predictor of Health Status

In a group of women who were HIV+ve and who had been exposed to sexual abuse or multiple abuses, Dale et al (2014) found that for each increase in score of one point on the CD-RISC-10, there was a significant increase in the odds ratio (OR=1.08) of having at least 95% adherence to highly active antiretroviral therapy (HAART) and a decrease in the odds (OR=0.94) of having a detectable viral load (less than 20 copies/mL). The authors recommended the use of coping strategies that promote resilience among this group in order to promote higher adherence and viral suppression.

Schure et al studied 151 older (above age 55) American Indians, and found that lower resilience was associated with poorer physical and mental health, and greater chronic pain.

Among OEF/OIF war veterans, the resilient cluster of people showed better adjustment than did those whose personality/coping profile indicated either overcontrol or undercontrol, and the authors suggested that this relationship was mediated via greater social support, active coping and flexibility (Elliott et al, 2015).

Liu et al (2015) observed a buffering effect of resilience on the negative impact of stress on sleep disturbance in 1,471 Chinese community dwelling adults.

Low baseline CD-RISC-10 predicted higher risk of alcohol misuse after one year in a national sample of military veterans, and greater increase in RISC over time predicted lower risk of alcohol misuse (Green et al, 2014).

In Air Force recruits, less resilient personnel were more likely to be separated from service due to unsuitability or mental illness. Using ROC, the Area under Curve (AUC) was 64-65%, indicating moderate accuracy in predicting outcome (Bezdjian et al, 2016).

The CD-RISC-10 was found to distinguish between Spanish caregivers with and without depression at a cut off score of ≤23. However, the AUC was only 0.73, which indicates a relatively non-precise classification (Blanco et al, 2017).

Among 48 patients undergoing arthroscopic surgery for rotator cuff repair, CD-RISC-25 predicted less nocturnal pain and better sleep quality two weeks post-surgery (Glogovac et al, 2019).

Test Retest Reliability

*CD-RISC-2*5:
Connor and Davidson showed acceptable test-retest reliability for the full CD-RISC (r=0.87). Khoshouei showed test-retest good reliability for the four factors in a factor analysis (r=0.78 to r=0.88) (Khoshouei, 2009). As noted, Ito et al (2009) showed good test-retest reliability in Japanese students. Test-retest reliability was reported by Giesbrecht et al (2009), who noted mean scores of 66.4 (10.8) at time 1, and 66.3 (9.8) at time 2, four months later. In Steinhardt’s study (2008), the wait-list control group showed no change in the CD-RISC over 4 weeks (70.5(12.3) and 70.6 (11.7)). Baek et al (2010) reported a test-retest reliability coefficient of r=0.70 in Korean subjects. Patients undergoing rehabilitation after spinal cord injury showed consistent scores in the CD-RISC (82.2, 81.9 and 82.6) across a 3-month period (White et al, 2010). Tsigkarpoulou et al (2018) reported test-reliability of the CD-RISC-25 in a Greek population to be 0.925 and a similar Cronbach’s alpha of 0.92. Solano et al (2016b) reported an intraclass correlation of 0.84 in 121 psychiatric outpatients who were tested twice. In a group of traumatically injured subjects, the CD-RISC score did not change across a 12-month follow up period from hospitalization (t =

-60.50, p= .840, Wilcoxon signed rank test) (Rainey et al, 2014). A form of split-sample reliability has also been demonstrated in the breaking of cohorts of PTSD patients by randomization before treatment (Davidson et al 2006), and (by non-randomization) of two missionary groups (Schaefer et al, 2006). In this process, the resulting CD-RISC-25 scores for the PTSD pairs were similar. The same was found in the missionary groups.

CD-RISC-10:
In a sample of Spanish patients with fibromyalgia, the CD-RISC-10 was repeated at six weeks, to yield a test-retest reliability of 0.89, and a Cronbach's alpha = 0.88 (Notario-Pacheco et al, 2014). A correlation of r=0.732 was obtained for test-retest reliability on the CD-RISC 10 in Spanish undergraduates (Notario-Pacheco et al, 2011). A test-retest reliability correlation coefficient of 0.90 was obtained for the CD-RISC 10 in a Chinese sample (Wang et al, 2010), and in another Chinese sample, of 0.78 (Ye et al, 2017). In the absence of any intervention, CD-RISC-10 score remained the same over one year in a large nationwide sample of military veterans, changing only by a score of 0.33 (Green et al, 2014). A similar finding was reported in 201 older healthy German women at intervals of six months by Sarubin et al (2015b) for the CD-RISC-10 (r = 0.81 test-re-test) and CD-RISC-25. No change in score between time 1 (29.2) and time 2 (29.8) was found in a recovering sample of Croatian flood survivors (Bakic & Ajdukovic, 2019). Kwan et al (2019) reported a test-retest reliability of 0.96 with the RISC-10. Tourunen (2019) found a lower ICC of 0.61 in older subjects.

CD-RISC-2:
The CD-RISC-2 was administered three times in 13 anesthesiology residents, with scores of 6.9, 6.6 and 6.5 reflecting little change as they adapted to acute occupational stress (Eisenach et al, 2014).

Sharma et al (2018) reported correlations of r = 0.71 between time 1 and time 2 for the CD-RISC-2 and r= 0.89 for the CD-RISC-10 in Nepali patients with chronic pain.

Biological and Other Mechanistic Studies of the CD-RISC

Further test of the scale's construct validity comes from biological studies as described in the following paragraphs. These studies show that the CD-RISC may serve as a valid marker of resilience as efforts are made to understand the putative neurobiology of resilience.

In a study of depression, Davidson and colleagues (2005) noted that improvement in resiliency correlated significantly with the extent of norepinephrine (NE) transporter occupancy in patients who were treated with venlafaxine-XR, a drug with substantial NE transporter (NET) inhibiting effects. We considered this finding to suggest that NE pathways are integrally involved in mediating resilience, and can perhaps be one point of entry for treatments which might enhance resiliency, i.e., drugs which inhibit the reuptake of NE. Indeed, this has been found to occur as noted above. This clinical finding resonates with an animal study which showed the importance of NET activity in regulating resilience.

Camardese et al (2007) examined a possible relationship between the CD-RISC and cortisol in depression, without finding any significant association. Another study looked at the relation between CD-RISC and cortisol also found no significant association (Phillips, 2011); in her study of unemployed men, Phillips found that cortisol failed to correlate with any variable.

The serotonin transporter (5HTT) is regarded as playing an important part in the regulation of anxiety-proneness, resistance to the effects of stress and resilience. The 5HTT promoter polymorphism (5HTTLPR) is under the influence of genetic control and those with the short allele have, in many studies, been found to show greater fear or amygdala arousal in response to neutral or fearful stimuli, as well as, in some instances, poorer response to certain treatments. A study by Stein et al (2009) showed that the CD-RISC 10 score was reduced in those with the short allele. For each copy of the short allele (i.e., heterozygous and homozygous), there was a1.53 increased odds of falling in the low resilient category of > 1 SD below the mean. A study by Carli et al (2011) explored the roles of 5HTTLPR status and childhood trauma on resilience and depression in male prisoners (n=763). Genotype did not influence resilience or depression, but an interaction between genotype and childhood trauma was found for both resilience and depression. The long-allele polymorphism was associated with lower resilience scores and may confer greater vulnerability in those exposed to previous severe stress. In a study of older adults, O'Hara et al (2012) failed to show a relationship between the 5HTTLPR short allele and resilience, although short allele status was associated with less successful aging. Graham et al (2013) studied 41 veterans with traumatic brain injury (TBI) and 26 controls without. They found evidence that the S'S' genotype of the 5-HTTLPR and TBI status were independently associated with resilience, but in opposite directions. Veterans with an S'S' genotype (with or without TBI) were the most resilient (83.2 and 83.3); those with an L' genotype but no TBI were intermediate (75.0), and those with an L' genotype and TBI were the least resilient (56.7), all groups differing from the L-genotype with TBI. An Iranian study (Azadmarzabadi et al, 2018) found that low RISC scores correlated with under-expression of the 5HTT gene, as well as genes for MAO-A and COMT, in 200 subjects who has responded to stressful events with an exaggerated acute stress reaction.

Arce and colleagues (2009) conducted a forced emotional choice task when presented with pictures of neutral faces and faces morphed to show sadness, fear and happiness. Among the findings was an association between high resilience on the CD-RISC 10 and a bias towards judging neutral faces as being happy. The assumed tendency of this group to engage in positive emotions may come to the rescue during times of hardship, unlike those with low resilience who cope less well in the face of stress.

In an fMRI study of working memory and emotional processing in PTSD patients and trauma controls, Morey et al (2008) failed to show a significant relationship between baseline CD-RISC score and neural activity in response to task-irrelevant visual distractors. Although the extent of these changes was related significantly to the DTS score, no such relationships were found with the CD-RISC.

Ha et al (2009) examined responses to different facial expressions in 143 Korean volunteers. They found that tendencies to recognize contemptuous faces were negatively related to CD-RISC score.

Paulus et al (2010) applied fMRI in response to target face assessment tasks in 26 university undergraduates. The major result showed that limbic and paralimbic region activation during face emotion processing is modulated by level of resilience. Greater resilience is associated with less activation in the ventromedial prefrontal cortex but more activation in the right anterior insular cortex. Higher resilience was also associated with less amygdalar activation.

Das and colleagues (2011) studied the dopamine receptor D4 (DRD4) exon III variable number tandem repeat (VNTR) polymorphism in 1,148 Australian adults between ages 30-34 years. They found that the 7-repeat allele protected against adverse effects of childhood abuse (CA) on resilience. Moreover, they found a relationship between CD-RISC score and approach/avoidance personality measures, and proposed that when stressors are present, the 7-repeat allele influences the development of personality in a way that protects against adverse outcomes. Azadmarabadi et al (2018) found that overexpression of dopamine signaling genes DRD4, DBH, DAT (and BDNF) was associated with lower RISC-25 scores in 200 Iranian subjects with acute stress syndromes following exposure to either everyday stress or major trauma.

In a study of rape trauma survivors, Malan (2011) examined telomere length and found no relationship between this measure and CD-RISC score. (No relationship was found between telomere length and depression, and only a marginal relationship was found for telomere length and PTSD).

Daniels et al (2012) studied 70 acute trauma survivors, a minority of whom had PTSD and assessed a subgroup of 12 subjects with fMRI in the context of provoking memories of the trauma. In the larger sample, CD-RISC predicted PTSD status at three months better than did CA, and fully mediated the relationship between CA and PTSD. In the fMRI group, CD-RISC score was positively correlated with BOLD signal strength in the right thalamus and middle frontal area gyri (Brodmann area 47), areas relevant to the regulation of emotion.

A Korean study (Kang et al, 2013), observed in males (but not females) that low resilience was associated with a particular COMT genotype, the Val/Val carrier, in whom the mean CD-RISC was 67.5, compared to the Val/Met and Met/Met carriers, who scored 70.9, a statistically significant difference. They also noted that in the low COMT Val/Val group, those with a BDNF Val/Val genotype scored lowest (64.7). A finding with respect to a CMOT gene has been described above in a sample of 200 Iranian subjects who were exposed to stress (Azadmarzabadi et al, 2018). A study which examined polymorphisms of the COMT gene in athletes found no difference in CD-RISC-25 scores for those typed as having the Val^{158}Met allele compared to the Met^{158}Met allele (Van Breda et al, 2015).

Bradley et al (2013) examined the relationship between childhood environment, the oxytocin OXTR rs53576 genotype and adult resilient coping as measured by the CD-RISC-10, in 971 African-American adults. Although RISC score was positively related to positive early childhood and family environment (and negatively correlated with PTSD, childhood abuse and lifetime trauma), it was unrelated to the oxytocin genotype. Another study which looked at the OXTR receptor gene in Korean volunteers found a correlation between the CD-RISC-25 score and the single marker rs2254298.

Dehydroepiandrosterone sulphate (DHEA-S) but not cortisol was found to correlate with the CD-RISC score in a sample of 32 healthy English adults, obtained as an opportunistic sample from a university community (Petros et al, 2013). This relationship remained after controlling for other variables.

A German study evaluated the relationship between CD-RISC-10 and attentional bias and control. Results showed that attentional control was positively related to CD-RISC score. Attentional bias to threat was negatively related to resilience when attentional control was low, and positively when control was high. The authors concluded that attentional processing may promote resilience (Schäfer et al, 2015).

In an fMRI study of 46 right-handed volunteers, level of resilience as measured by the CD-RISC-10 was related to attention to bodily signals (interceptive awareness) and activation of the insular and thalamus. Those with the lowest resilience paid less attention yet showed greatest activation (i.e., neural processing) to aversive bodily perturbations, and the authors concluded that low resilience was associated with a mismatch between attention to, and processing of, interoceptive afferents which could result in poor adaptation to stressful situations (Haase et al, 2016).

Circadian typology was found to relate to CD-RISC-10 in a community sample of 1922 Spanish workers and students, where morning-preferrers on the Morningness-Eveningness Questionnaire scored higher (30.9 (0.3)) than did evening-type subjects (26.8 (0.3)) (Antunez et al, 2015). Similar results were found in a cohort of Korean subjects, in whom RISC scores were higher in “morning-preferrers” with major depression (Chung et al, 2018). Chronobiology was studied in relation to the resilience of Korean college students. Using the CD-RISC-10, Lee et al (2016) found that morning types were more resilient than evening or intermediate types. Morningness, better sleep quality and greater daylight sunshine exposure all predicted resilience.

Physiological (autonomic) reactivity was compared in high and low resilient subjects based on CD-RISC-10 scores (Lu et al, 2016). Highly resilient individuals showed better recovery of systolic and diastolic BP and pulse, and of respiratory sinus arrhythmia when anticipating a stressful public speaking challenge at two times, as well as greater habituation of BP at time 2.

Among pregnant Chinese women seen at a prenatal visit, resilience was associated with better sleep, and it also mediated the relationship in a protective manner between pregnancy-related stress and poor sleep (Li et al, 2016).

Resilience was related to autonomic reactivity in a stress paradigm of public speaking among Chinese students (Lü et al, 2016). Those with higher CD-RISC scores showed greater habituation to repeated stress as measured by respiratory sinus arrhythmia (RSA) and blood pressure and pulse and more complete recovery on these measures, compared to the low resilience group.

An Italian MEG study of 38 trauma-exposed subjects with PTSD or no PTSD demonstrated a significant inverse correlation (r = - 0.45) between RISC score and connectivity between the Default Mode Networks (DMN) and Salience Networks (SN) in various regions of the cortex. This relationship was accounted for by those with PTSD, leading the authors to conclude that disruption of dialogue between the two network systems impaired recovery from trauma and was associated with lower resilience (Brunetti et al, 2017).

A large sample (n = 10,812) of men and women above age 35 in a Southern Italian town, resilience scores were higher in those whose diet was of the Mediterranean type and/or included large amounts of vegetable-based foods. Dietary polyphenol or antioxidant intakes and greater variety in fruit and vegetable consumption were positively associated with higher RISC-25 scores, while Western-type diets were not (Bonaccio et al, 2019). In the same sample, CD-RISC-25 score was negatively correlated with platelet distribution width, a measure of immunity (Gialluisi et al, 2019).

Forty-eight healthy US volunteers underwent structural MRI scans, with segmentation and regional parcellation of images to yield 165 regions. Significant correlations were found between CD-RISC-25 score and gray matter (GM) change in hypothesized brain regions: subparietal and intraparietal sulci, amygdala, anterior and subgenual cingulate cortices. Resilience was associated with brain morphology of regions involved in cognitive (executive control) and affective (emotional arousal) processes related to cortico-limbic inhibition (Gupta et al, 2017). Positive correlations were also found for resilience and positive affect (r=0.62) on the PANAS.

The CD-RISC-25 was associated with HPA axis function in young children living with the stigma of parental HIV, specifically higher levels of awakening salivary cortisol and steeper cortisol slopes in the more resilient children (Chi et al, 2015). More resilient children felt less stigma and in turn showed a "healthier" diurnal cortisol rhythm.

Subjects with irritable bowel syndrome (IBS) did not show an interaction between resilience and IBS severity for ACTH-stimulated cortisol response using the CD-RISC-25, but such an interaction was observed with the Brief Resilience Scale (BRS), possibly reflecting the different item contents (Park et al, 2017).

Highly resilient Chinese medical students differed from low-resilient counterparts in showing greater bias towards positive than negative emotional information on a facial emotion recognition test (Peng et al, 2017).

Psychogenic nonepileptic seizures (PNES) with altered responsiveness are associated with lower resilience than PNES with intact responsiveness (scores 55.9 vs 67.8, $p<0.03$) (Baslet et al, 2017).

In Australian veterans and US civilians with PTSD, CD-RISC correlated positively with DNA methylation-predicted age (DNAm age), ($r = 0.32$, and $r = 0.23$, $p<0.025$), i.e. as those with PTSD responded with greater stress burden (allostatic load), their higher resilience came at a price to health. The self-efficacy factor items accounted for this relationship. In those who did not develop PTSD after stress, the relationship between RISC and DNAm was inverse, i.e. a negative correlation (Mehta et al, 2018).

In a twin study paradigm, Wolf et al (2018) showed a heritability of 49% for PTSD and 25% for resilience, with the two measures correlating at r = -0.59. 59% of this correlation was attributable to a single genetic factor, while the remainder was due to a single non-shared environmental factor. Further, resilience was also influenced by common and unique factors that were separate from PTSD, and that there was no genetic factor specific to resilience. The authors proposed a single spectrum of vulnerability, with high PTSD symptoms at one end and a resilient low-symptom expression at the other end.

In a PET study, the RISC-25 was higher in subjects who recovered from PTSD vs controls with PTSD, and score correlated with metabolic rate of glucose in the anterior insula (Jeong et al, 2019).

In samples of healthy controls and schizophrenia, Lee found that the CD-RISC-10 contributed significantly to outcomes of physical health, mental health, glycosylated hemoglobin (HbA1c) and HOMA-IR, an integrated measure of insulin resistance, but not to BMI, in a series of GLMs examining the relationships between trauma severity, resilience and subject group. Cohen Effect Sizes were generally higher than for other predictor variables (0.39-0.55).

In the first fMRI report of neural correlates of resilience in youth, Iadipaolo et al (2018) found that children and adolescents with the highest RISC-10 scores showed less time spent in dynamic resting-state functional connectivity (rsFC) between the anterior dorsal motor network (DMN) and right central executive network (CEN).

Among 70 older US adults with depression, diffusion-weighted MRI revealed that "grit" in the CD-RISC was positively associated with fractional anisotropy in the callosal region connecting prefrontal cortex – i.e. white matter pathways having to do with cognitive control and emotional regulation (Vlasova et al, 2018).

In a sample of 54 undergraduate students in Taiwan, the RISC correlated negatively with late positive potentials (LPP) evoked by presentation of negative images, a relationship that was driven primarily by level of optimism on the RISC (Chen et al, 2018).

Bruenig et al (2018) found a correlation between RISC and inflammatory markers interleukin-6 (p = 0.023) and interferon (p = 0.007) in 299 Caucasian Australian combat veterans.

More resilient individuals show greater habituation as measured by acoustic startle-induced skin conductance (SC), where the SC habituation slope is steeper than for less resilient volunteers in a sample of young Australians (Walker et al, 2019).

Wong et al (2019) studied 221 healthy Chinese adoescents, and found that RISC-10 correlated with amplitude of MRI-measured low-frequenct fluctuations in the right orbitfrontal cortex in women.

In 99 Japanese earthquake survivors, an MRI study showed a negative correlation between RISC-25 and centrality in the anterior cingulate cortex, a region of the brain concerned with cognitive processes, error detection, performance monitoring and fear conditioning (Ota et al, 2019).

Proinflammatory markers (IL-6 and hsTNF-α) correlated negatively with RISC-25 score in Japanese civilian women with PTSD, but not in healthy controls (Imai et al, 2019).

Translations of the CD-RISC

Approved translations of the CD-RISC currently exist in the following seventy-seven languages:

Afrikaans, Albanian, Amharic, Arabic, Assamese, Azeri, Bahasa Indonesia, Bahasa Malaysia, Bemba, Bangla (Bengali), Bosnian, Bulgarian, Cebuano, Chinese (Taiwan and Peoples Republic), Burmese (CD-RISC-2 and -25), Croatian, Creole, Czech, Danish, Dari, Dutch, Estonian, Farsi, Finnish, French (France, Belgium, Canada), German, Greek, Hakha Chin (CD-RISC-2), Hebrew, Hindi, Hungarian, Icelandic, Irish, isiXhosa, isiZulu, Italian, Japanese, Kannada, Kinyarwanda, Kiswahili, Khmer (CD-RISC-10), Korean, Kurdish (Kurmanschi and Sorani), Liberian, Lithuanian, Macedonian, Malagasy, Malayalam, Marathi, Mongolian, Nepali, Norwegian, Pashto (CD-RISC-2 and CD-RISC-10), Polish, Portuguese (Europe, Brazil), Quechua, Romanian, Russian, Serbian, Slovenian, Somali (CD-RISC-2), Spanish (Europe, Caribbean, South America, Central

America), Swedish, Tagalog, Tamil, Telugu, Thai, Tigrinya (CD-RISC-2), Turkish, Ukrainian, Urdu, Vietnamese, Welsh.

We are aware of some unauthorized translations of the CD-RISC. To minimize further use of these, any person who is considering either the use of a translation or the creation of a new translation is requested to contact either Dr. Connor or Dr. Davidson. We cannot vouch to the accuracy, validity or reliability of these unauthorized translations, some of which have been taken directly from the publication by Davidson and Connor (2003), which does not provide the complete scale.

Citations that Mention the CD-RISC or Report Original Research

Abolghasemi A, Rajabi S, Sheikhi M, Kiamarsi A, Sadrolmamaleki V. Comparison of resilience, positive/negative affect, and psychological vulnerability between Iranian infertile and fertile men. Iran J Psychiatry 2013; 7: 9-15.

Abrams TE, Ogletree R, Ratnapradipa D, Neumeister M. Resiliency theory in psychosocial burn research; A qualitative analysis. Poster presented at National Conference of American Burn Association, Chicago, April 20-25, 2015.

Adamou A, Mchunu G, Naidoo JR. Stress and resilience among women living with HIV in Nigeria. Afr J Prim Health Care Fam Med 2019 Oce 23; 11(1): e1-e6. DOI: 10.4102/phcfm.v11i1.2046.

Adibsereshki N, Hatamizadeh N, Sajedi F, Kazemnejad A. The effectiveness of a resilience intervention program on emotional intelligence of adolescent students with hearing loss. Children (Basel) 2019 March 21; 6(3). Pii: E48. Doi: 10.3390/children6030048.

Ahmad S, Feder A, Lee EJ, Wang Y, Southwick SM, Schlackman E, Buchholz K, Alonso A, Charney DS. Earthquake impact in a remote South Asian population: psychosocial factors and posttraumatic symptoms. J Traumatic Stress 2010; 23: 408-412.

Ahmed A. Post-traumatic stress disorder, resilience and vulnerability. Advances in Psychiatric Treatment. 2007; 13: 369-375. *(Review article)*

Akeman E, Kirlic M, Clausen A, et al. A pragmatic clinical trial examining the impact of a resilience program on college student mental health. Depression and Anxiety 2019; DOI: 10.1002/da.22969.

Alemi Q, Stempel C, Koga PM, et al. Risk and protective factors associated with the mental health of young adults in Kabul, Afghanistan. BMC Psychiatry 2018; 18:71. Doi.org/10.1186/s12888-018-1648-4.

Alizadeh S, Khanamadi S, Vedahir A, Barjasteh S. The relationship between resilience wit self-compassion, social support and sense of belonging in women with breast cancer. Asian Pac J Cancer Prev. 2018; 19: 2469-2474.

Allan JF, McKenna J, Dominey S. Degrees of resilience: profiling psychological resilience and prospective academic achievement in university inductees. British Journal of Guidance & Counselling 2014; 42: 9-25.

Almedom AM, Glandon D. Resilience is not the absence of PTSD any more than health is the absence of disease. J Loss and Trauma 2007; 12: 127-143 *(Review article).*

Aloba O, Olabisi O, Aloba T. The 10-item Connor-Davidson Resilience Scale: factorial structure, reliability, validity, and correlates among student nurses in Southwestern Nigeria. J Amer Psychiatr Nurses Assoc 2016; 22: 43-51.

Alonso-Tapia J, Rodriguez-Rey R, Gerrido-Hernansaiz H, et al. Coping assessment from the perspective of the person-situation interaction: Development and validation of the Situated Coping Questionnaire for Adults (SCQA). Psicothema 2016; 28: 479-486.

Al-Shammeri ASS, Abu Bakr NKA. Modeling the causal relationship between parental treatment methods, psychological resilience and life-satisfaction. J Education and Practice. 2017; 8: 88-95. ***[NOTE: THIS STUDY USED AN UNAUTHORIZED 29-ITEM VERSION OF THE SCALE].***

Altaha N, Kraus S. Kill the Indian, Save the Man: Native American Historical Trauma in College Students. Dissertation accessed at http://eprints.fortlewis.edu/45/2/Noel_FINAL_META_PDF. PDF.

Amble TC, et al. The impact of resilience on anxiety in African-American breast cancer survivors and cancer-free women. Poster presentation at Annual Conference for the National Association of Black Psychologists, Houston, TX, 2007.

Ameen RF, Cinkara E. The impact of language learning on internally displaced and refugee resilience. Europ J Educational Res 2018; 7: 529-538.

Ameen RF. The impact of psychosocial support activities on the resilience of conflict-affected adolescents in Iraq: A sample of Nineveh Governorate. Res Humanities Soc Sci 2018; 8: 48-56.

Anderson KM, Bang E-J. Assessing PTSD and resilience for females who during childhood were exposed to domestic violence. Child & Family Social Work 2012a; 17: 55-65.

Anderson KM, Renner LM, Danis FS. Recovery, resilience and growth in the aftermath of domestic violence. Violence Against Women 2012b; 18: 1279-1299.

Anderson MI, Daher M, Simpson GK. A predictive model of resilience among family caregivers supporting relatives with traumatic brain injury (TBI): A structural equation modelling approach. Neuropsychol Rehabil 2019 May 28: 1-22. Doi: 10.1080/09602011.2019.1620787. [Epub ahead of print].

Andresen R, Caputi P, Oades L. The stages of recovery instrument: development of a measure of recovery from serious mental illness. Austr NZ Journal of Psychiatry. 2006; 40: 972-980.

Ang SY, Uthaman T, Ayre TC, et al. Association between demographics and resilience – a cross-sectional study among nurses in Singapore. Int Nurs Rev 2018 Mar 8. Doi: 10.1111/inr.12441. [Epub ahead of print].

Anjos JF. See Faria-Anjos below.

Antunez JM, Navarro JF, Adan A. Circadian typology is related to resilience and optimism in healthy adults. Chronobiology Int 2015 March 23 [Epub ahead of print].

Arbour C, Gosselin N, Michallet B, Lefebvre H. Does age matter? A mixed methods study examining determinants of good recovery and resilience in young and middle-aged adults following moderate-to-severe traumatic brain injury.   J Adv Nursing July 2017. DOI: 10.1111/jan.13376.

Arce A, et al. Association between individual differences in self-reported emotional resilience and the affective perception of neutral faces. J Affective Disorders, 2008, doi: 10.1016/j.jad.2008.08.015.

Arewasipkorn A, Turner AP, Altschuler KN, et al. Cognitive and affective mechanisms of pain and fatigue in multiple sclerosis. Health Psychology 2018; 16: 544-552.

Ariapooran S, Heidari S, Asgari M, et al. Individualism-collectivism, social support, resilience and suicidal ideation among women with the experience of the death of a young person. IJCBNM 2018; 6: 250-259.

Arrogante O, Aparicio-Zaldivar E. Burnout and health among critical care professionals: The mediational role of resilience. Intensive Crit Care Nurs 2017 May 22. pii: S0964-3397(16)30145-8. doi: 10.1016/j.iccn.2017.04.210.04.010 [Epub ahead of print].

Artuch-Garde R, Gonzales-Torres MDC, de la Fuente J, et al. Relationship between resilience and self-regulation: A study of Spanish youth at risk of social exclusion. Front Psychol 2017 Apr 20; 8: 612. doi: 10.3389/fpsyg.2017.00612.

Avrech Bar M, Katz Leurer M, Warshawski S, Itzhaki M. The role of personal resilience and personality traits of healthcare students on their attitudes towards interprofessional collaboration. Nurse Educ Today 2017; 15: 36-42.

Azadmarzabadi E, Haghighatfard A, Mohammadi A. Low resilience to stress is associated with candidate gene expression alterations in the dopaminergic signalling pathway. Psychogeriatrics 018 Feb 8. Doi:10.1111/psyg.12312. [Epub ahead of print].

Baek H-S, Lee K-U, Joo E-J, Lee M-Y, Choi K-S. Reliability and validity of the Korean version of the Connor-Davidson Resilience Scale (K-CD-RISC). Psychiatric Investigation: Official Journal of the Korean Neuropsychiatric Association 2010; 7: 109-115.

Bajaj B, Pande N. Mediating role of resilience in the impact of mindfulness on life satisfaction and affect as indices of subjective wellbeing. Personality and Individual Differences 2015. DOI: 10.1061/jpaid/2015.09.005.

Bakic H, Ajdukovic D. Stabillity and change post-disaster: dynamic relations between individual, interpersonal and community resources and psychosocial function. Eur J Psychotraumatol 2019 May 29; 10(1): 1614821. Doi: 10.1080/20008198.2019.1614821.

Baron Nelson M, Riley K, Arellano K. Adding a parent to the brain tumor team: Evaluating a peer support intervention for parents of children with brain tumors. J Pediatr Oncol Nurs 2018 May; 35: 218-228.

Baslet G, Tolchin B, Dworetzky BA. Altered responsiveness in psychogenic nonepileptic seizures and its implication to underlying psychopathology. Seiizure 2017; 52: 162-168.

Battalio SL, Silverman AM, Ehde DM, Amtmann D, Edwards KA, Jensen MP. Resilience and function in adults with physical disabilities: an observational study. Arch Phys Med Rehabil 2016 Dec 18. Pii: S0003-9993(16)31306-5. Doi: 10.106/j.apmr.2016.11.012. [Epub ahead of print].

Battalio SL, Tang CL, Jensen MP. Resilience and function in adults with chronic physical disabilities: A cross-lagged panel design. Ann Behav Med 2019 Nov 1. Pii: kaz048. DOI: 10.1093/abm/kaz048.

Bauriedl-Schmidt C, Jobst A, Gander M, Seidl E, Sabass L, Sarubin N, Mauer C, Padberg F, Buchheim A. Attachment representations, patterns of emotional regulation, and social exclusion in patients with chronic and episodic depression and healthy controls. J Affective Disorders 2017; 210: 130-138.

Bell CJ, Frampton CM, Colhoun HC, et al. Earthquake brain: Impairment of spatial memory following long-term earthquake-related stress. Austr & New Zealand J Psychiatry 2018; DOI: 10.1177/0004867418789498.

Bell KR, Brockway JA, Fann JR, Cole WR, St. De Lore J, Bush N, Lang AJ, Hart T, Warren M, Dikmen S, Temkin N, Jain S, Raman R, Stein MB. Concussion treatment after combat trauma: Development of a telephone-based, problem solving intervention for service members. Contemp Clin Trials 2014.

Benetti C, Kambouropoulos N. Affect-regulated indirect effects of trait anxiety and trait resilience on self-esteem. Personality and Individual Differences, 2006; 41: 341-352.

Bensimon M. Elaboration on the association between trauma, PTSD and posttraumatic growth: the role of trait resilience. Personality and Individual Differences 2012; 52: 782-787.

Besharat MA, Zarpour SMA, Bahrami-Ehsan H, Rostami R, Mirdamadi MJ. Comparison of personality characteristics of individuals with irritable bowel syndrome and healthy individuals. Journal of Clinical Psychology 2010; 2: 9-16.

Bezdjian S, Schneider KG, Burchett D, Baker MT, Garb HN. Resilience in the United States Air Force: Psychometric properties of the Connor-Davidson Resilience Scale (CD-RISC). Psychological Assessment 2016; Aug 8. [Epub ahead of print].

Bhat S. Gender differences in quality of life and resilience in residents of elderly care homes in Chennai. MA Thesis, Banyan Academy of Leadership in Mental Health, Chennai, Tamil Nadu. 2017.

Bhattarai M, Maneewat K, Sae-Sia W. Determinants of resilience among people who sustained spinal cord injury from the 2015 earthquake in Nepal. Spinal Cord 2017. Advance online publication doi:10.1038/sc.2017.93.

Bhattarai M, Maneewat K, Sae-Sia W. Psychosocial factors affecting resilience in Nepalese individuals with earthquake-related spinal cord injury: a cross-sectional study. BMC Psychiatry 2018 Mar 2; 18(1) 60. Doi: 10.1186/s12888-018-1640-z.

Bibi A, Kalim S, Khalid MA. Post-traumatic stress disorder and resilience among adult burn patients in Pakistan: a cross-sectional study. Burns & Trauma 2018, 6-8. DOI: 10.1186/s41038-018-0110-7.

Bird AN, Martinchek M, Pincavage A. A curriculum to enhance resilience in internal medicine interns. J Grad Med Educ 2017 Oct; 9(5): 600-604. Doi: 10.4300/JGME-D-16-00554.1.

Bitsika V, Sharpley CF, Peters K. How is resilience associated with anxiety and depression? Analysis of factor score interactions within a homogeneous sample. German Journal of Psychiatry 2010; 13: 9-16.

Black R, Dorstyn D. A biopsychosocial model of resilience for multiple sclerosis. J Health Psychology 2013; DOI: 101177/1359105313512879.

Blanc J, Rahill GJ, Laconi S, Mouchenik Y. Religious beliefs, PTSD, depression and resilience in survivors of the 2010 Haiti earthquake. J Affective Disorders 2016; 190: 697-703.

Blanco V, Guisande MA, Sanchez MT, Otero P, Vazquez FL. Spanish validation of the 10-item Connor-Davidson Resilience Scale (CD-RISC-10) with non-professional caregivers. Aging & Mental Health 2017. Doi.org/10.1080/13607863.2017.1399340.

Block K, Molyneaux R, Gibbs L, et al. The role of the natural environment in disaster recovery: “We live here because we love the bush”. Health & Place 2019; 57: 61-69.

Bodde MI, Schrier E, Krans HK, Geertzen JH, Dijkstra PU. Resilience in patients with amputation because of Complex Regional Pain Syndrome type 1. Disability and Rehabilitation 2013; DOI: 10.3109/09638288.2013.822023.

Boell JEW, da Silva DMGV, Hegadoren KM. Sociodemographic factors and health conditions associated with the resilience of people with chronic diseases: a cross sectional study. Revista Latino-Americana Enfermagem 2016; 24e2786. doi: 10.1590/1518-83451205.2786.

Bolinski F, Kleiboer A, Karyotaki E, et al. Effectiveness of a transdiagnostic individually tailored Internet-based and mobile-supported intervention for the indicated prevention of depression and anxiety (ICare Prevent) in Dutch college students: study protocol for a randomized controlled trial. Trials 2018; 19: 118. Doi.org/10.1186.s13063-018-2477-y.

Bonaccio M, Di Castelnuovo A, Costanzo S, et al. Mediterranean-type diet is associated with higher psychological resilience in a general adult population: findings from the Moli-sani study. Eur J Clin Nutr 2017 Sep 27. doi: 10.1038/ejcn.2017.150 [Epub ahead of print].

Bosanquet K, Adamson J, Atherton K, et al. CollAborative care for Screen-Positive ElderS with major depression (CASPER plus): a multicentered randomized controlled trial of clinical effectiveness and cost-effectiveness. Health Technol Assess 2017 Nov; 21 (67): 1-252. Doi: 10.3310/hta21670.

Bozikas VP, Parlapani E, Holeva V, et al. Resilience in patients with a recent diagnosis of a schizophrenia spectrum disorder. J Nerv Ment Disease 2016 Aug; 204(8): 578-584. doi: 10/1097/NMD.0000000000000541.

Bozikas VP, Parlapani E, Ntouros E, et al. Resilience predicts social functioning in clinically stable patients with bipolar disorder. J Nerv Ment Disease 2018 Jun 17. doi: 10.1097/NMD.0000000000000843.

Brancu M, Wagner HR, Morey RA, et al. The post-deployment mental health (PDMH) study and repository: A multi-site study of US Afghanistan and Iraq era veterans. Int J Methods Psychiatr Res 2012; 26: e1570. DOI: 10.1002/mpr.1570.

Bradley B, Davis TA, Wingo AP, Mercer KB, Ressler KJ. Family environment and adult resilience: contributions of positive parenting and the oxytocin receptor gene. Europ J Psychotraumatology 2013; 4: 21659. http://dx.doi.org/10.3402/ejpt.v410.21659.

Brandalise MH, de Araujo Filho GM, Centeno RS, et al. Effects of a brief psychotherapeutic intervention on resilience and behavior in patients with drug-resistant mesial temporal lobe epilepsy and late seizure recurrence after surgery. Epilepsy Behav 2019 Nov; 100(Pt A): 106512. Doi: 10.1016/j.yebeh.2019.106512.

Breno AL, Paz Galupo M. Sexual abuse histories of young women in the US Child Welfare System: a focus on trauma-related beliefs and resilience. Journal of Child Sexual Abuse 2007; 16: 97-113.

Bruenig D, Mehta D, Morris CP, et al. Correlation between interferon γ and interleukin 6 with PTSD and resilience. Psychiatry Res 2018; 260: 193-198.

Brown DL. African-American resiliency: examining racial socialization and social support as protective factors. J Black Psychology, 2008; 34: 32-38.

Brown DL, Tylka TL. Racial discrimination and resilience in African American young adults: examining racial socialization as a moderator. J Black Psychology 2011; 37: 259-285.

Brown R, Wey H, Foland K. The relationship among change fatigue, resilience, and job satisfaction of hospital staff workers. J Nursing Scholarship 2018; doi: 10.1111/jnu.12373. ***[Report used a 1-5 scoring range. Corrected values appear in this manual]***.

Brunetti M, Marzetti L, Sepede G, et al. Resilience and cross-network connectivity: A neural model for post-trauma survival. Prog Neuropsychopharmacol Biol Psychiatry 2017; 77: 110-119.

Bruwer B, Emsley R, Kidd M, Lochner C, Seedat S. Psychometric properties of the Multidimensional Scale of Perceived Social Support in youth. Comprehensive Psychiatry 2008; 49: 195-201

Bullock WA. Measuring the Promise of Recovery: A compendium of recovery and recovery-related instruments, Part II. In, Campbell-Orde T, Garrett E & Leff S (Eds). The Evaluation Centers @ HSRI. Cambridge, MA. 2005.

Burns RA, Anstey KJ. The Connor-Davidson Resilience Scale (CD-RISC): Testing the invariance of a uni-dimensional measure that is independent of positive and negative affect. Personality and Individual Differences 2010; 48: 527-533.

Burns RA, Anstey KJ, Windsor TW. Subjective well-being mediates the effects of resilience and mastery on depression and anxiety in a large community sample of young and middle-aged adults. Australian and New Zealand Journal of Psychiatry 2010; Early online, 1-9.

Burrow-Sanchez J, Corrales C, Jensen CO, Meyers K. Resilience in a sample of Mexican-American adolescents with substance use disorders. Psychological Assessment 2014, http://dx.doi.org/10.1037/pas0000011.

Burton LE, Queadan F, Burge MR. Efficacy of equine-assisted psychotherapy in veterans with posttraumatic stress disorder. J Integr Med Jan; 17(1)14-19. Doi: 10.1016/j/joim.2018.11.001.

Cahyani YE, Akmal SZ. Pernan spiritualitas terhadap resiliensi pada mahasiswa yang sedang mengerjakan skripsi (The role of spirituality on resiliency in students who are doing thesis). Jurnal Psikoislamedia 2017; 2: 32-41.

Calcote JC, Carson AI, Peskin MF, Emery RJ. Assessing postdisaster psychological stress in hazardous waste operations and emergency response (HAZWOPER) workers. Disaster Med and Public Health Prep 2013; 7: 452-460.

Callegari C, Bertu L, Caselli I, et al. Resilience in older adults: influence of the admission in nursing home and psychopathology. Neuropsychiatry 2016; 6: 117-123.

Camardese G, et al. Plasma cortisol levels and resilience in depressed patients. Eur Neuropsychopharmacology 2007; 17: Suppl 4: 338-339 (Abstract). Poster presented at 20th Meeting, ECNP, Vienna, October 13-17, 2007.

Camardese G, et al. Predicting response in difficult-to-treat depressed patients. Eur Neuropsychopharmacology 2007; Suppl 4: S 326-327 (Abstract).

Camardese G, Vasale M, D’Alessandris L, et al. A mixed program of psychoeducational and psychological rehabilitation for patients with bipolar disorder in a day hospital setting. J Nerv Ment Dis 2018; 206: 290-295.

Cameron D, Dromerick LJ, Ahn J, Dromerick AW. Executive/life coaching for first year medical students: a prospective study. BMC Med Educ 2019 May 22;19(1):163. doi: 10.1186/s12909-019-1564-8.

Campbell-Sills L, Cohan SL, Stein MB. Relationship of resilience to personality, coping and psychiatric symptoms in young adults. Behav Res & Ther 2006; 44: 585-599.

Campbell-Sills L, Stein MB. Psychometric analysis and refinement of the Connor-Davidson Resilience Scale (CD-RISC): validation of a 10-item measure of resilience. J Traumatic Stress 2007: 20: 1019-1028.

Campbell-Sills L, Forde D, Stein MB. Demographic and childhood environmental predictors of resilience in a community sample. J Psychiatric Res 2009; 43: 1007-1012. doi:10:106/j.psychires.2009.01.013 and personal communicaton to Dr. Davidson, October 5, 2015.

Cao Q, Liu L. Loneliness and depression among Chinese drug users : Mediating effect of resilience and moderating effect of gender. J Community Psychol 2019 Oct 22. DOI : 10.1002/jcop.22262. [Epub ahead of print].

Cao Q, Zhou Y. Association between social support and life satisfaction among people with substance use disorder : the mediating role of resilience. J Ethn Subst Abuse 2019 Sep 23 : 1-13. Doi : 10.1080/15332640.2019. 1657545.

Caparros-Gonzalez RA, Garcia-Garcia I, Mariñas-Lirola J, et al. Protocolo del estudio de cohortes gestastress sobre los efectos del estrés durante el embarzo mediante le medida del cortisol en cabello de la mujer y del recién nacido. Rev Esp Salud Publica 2018 ; 92 : 16 de abril e1-e9.

Carli V, Jovanovic N, Podlesek A, Roy A, Rihmer Z, Maggi S, Marusic D, Cesaro C, Marusic A, Sarchiapone M. The role of impulsivity in self-mutilators, suicide ideators and suicide attempters – A study of 1265 incarcerated individuals. Journal of Affective Disorders 2010 ; 123 : 116-122.

Carli V, Roy A, Bevilacqua L, Maggi S, Cesaro C, Sarchiapone M. Insomnia and suicidal behaviour in prisoners. Psychiatry Research 2011 ; 185 : 141-145.

Carli V, Mandelli L, Zaninotto L, Roy A, Recchia L, Stoppia L, Gatta V. A protective genetic variant for adverse environments ? The role of childhood traumas and serotonin transporter gene on resilience and depressive severity in a high-risk population. European Psychiatry 2011 ; 26 : 471-478.

Carli V, Mandelli L, Zaninotto L, Alberti S, Roy A, Serretti A, Sarchiapone M. Trait-aggressiveness and impulsivity : Role of psychological resilience and childhood trauma in a sample of male prisoners. Nordic J Psychiatry 2013 ; DOI 10.3109/08039488.2012.756061.

Carlsen K, Haddad N, Gordon J, et al. Self-efficacy and resilience are useful predictors of transition readiness scores in adolescents with inflammatory bowel diseases. Inflamm Bowel Dis 2017 Feb 7. doi : 10.1097/MIB.0000000000001038 [Epub ahead of print].

Carlsen K, Hald M, Dubinsky MC, et al. A personalized eHealth transition concept for adolescents with inflammatory bowel disease : design of intervention. JMIR Pediatr Parent 2019 Apr 24 ; 2(1) : e12258. Doi : 10.2196/12258.

Carter F, Bell C, Ali A, McKenzie J, Boden JM, Wilkinson T. Predictors of psychological resilience amongst medical students following major earthquakes. N Z Medical Journal 2016 May 6 ; 129 (1434) : 17-22.

Carter H. Resilience and coping in mothers of children with sickle cell disease. 2019 Dissertation. 1635. https://aquila.usm.edu/dissertations/1635.

Catalano D, et al. Confirmatory factor analysis of the Connor-Davidson Resilience Scale. Poster presentation at 116th Annual Meeting, American Psychological Association, Boston. MA. August 14-17, 2008.

Catalano D, Chan F, Wilson L, Chiu C-Y, Muller VR. The buffering effect of resilience on depression among individuals with spinal-cord injury: a structural equation model. Rehabilitation Psychology 2011; 56: 200-211.

Chacon-Cuberos R, Castro-Sanchez M, Perez-Turpin JA, et al. Levels of physical activity are associated with motivational climate and resilience in university students of physical education from Andalucia: An explanatory model. Front Psychol 2019 Aug 6:10:1821. Doi: 10.3389/fpsyg.2019.01821.

Chamberlain D, Williams A, Stanley D, Mellor P, Cross W, Siegloff L. Dispositional mindfulness and employment status as predictors of resilience in third year nursing students: a quantitative study. Nursing Open 2016. DOI : 10.1002/nop2.56.

Chacon-Cuberos R, Puertos-Molero P, Perez-Cortes AJ. Niveles de resiliencia segun practica de actividad fisica en estudiantіes universitarios de Educacion Fisica. ESHPA – Education, Sport, Health and Physical Activity 2017; 1(59-67).

Chan AOM, Chan YH, Kee JPC. Exposure to crises and resiliency of health care workers in Singapore. Occupational Medicine 2013; 63: 141-144.

Chana N, Kennedy P, Chessell ZJ. Nursing staffs' emotional well-being and caring behaviours. J Clinical Nursing 2015. DOI: 10.1111/jocn.12891.

Chen D, Wu J, Yao Z, et al. Negative association between resilience and event-related potentials evoked by negative emotion. Sci Rep 2018 May 8;8(1): 7149. Doi: 10.1038/s41598-018-25555-w.

Chen H, Xu J, Mao Y, et al. Positive coping and resilience as mediators between negative symptoms and disability among patients with schizophrenia. Front Psychiatry 2019 Sep 10; 10:641. Doi: 10.3389/fpsyt.2019.00641.

Chen S, Chen T, Bonanno GA. Expressive flexibility: Enhancement and suppression abilities differentially predict life satisfaction and psychopathology symptoms. Personality and Individual Differences 2018: 126: 78-84.

Chen X, Wang Y, Yan Y. The Essential Resilience Scale: Instrument development and prediction of perceived health and behavior. Stress and Health 2015. Wiley Online. DOI: 10.1002/smi.2659.

Chen Y, Shen WW, Gao K, Lam CS, Chang WC, Deng H. Effectiveness RCT of a CBT intervention for youths who lost parents in the Sichuan, China, Earthquake. Psychiatric Services 2014; 65: 259-262.

Cheng C, Dong D, He J, et al. Psychometric properties of the 10-item Connor-Davidson Resilience Scale (CD-RISC-10) in Chinese undergraduates and depressive patients. J Affect Dis 2019 Oct 12;261:211-220.

Chi P, Slatcher RB, Li X, et al. Perceived stigmatization, resilience, and diurnal cortisol rhythm among children of parents living with HIV. Psychol Sci 2015; 26(6): 843-852.

Choi J-W, Cha B, Jang J, Park C-S, Kim B-J, Lee C-S, Lee S-J. Resilience and impulsivity in euthymic patients with bipolar disorder. Journal of Affective Disorders 2015; 170: 172-177.

Chow KM, Tang WKF, Chan WHC, et al. Resilience and wellbeing of university nursing students in Hong Kong: a cross-sectional study. BMC Med Educ 2018 Jan 12; 18(1): 13. Doi: 10.1186/s12909-018-1119-0.

Christensen ME. Resilience and health outcomes in patients with traumatic injury. Dissertation thesis 2011 accessed at http://digital.library.unt.edu/ark:/67531/metadc84187/m2/1/high_res_d/thesis.pdf. February 2, 2014.

Chung JK, Choi K-S, Kang H-G, Jung HY, Joo E-J. The relationship between morningness-eveningness and resilience in mood disorder patients. Comprehensive Psychiatry 2018; 87: 72-78.

Clarke G, Asiedu YA, Herd K, et al. Exploring the reltation between patients' resilience and quality of life after treatment for cancer of the head and neck. Br J Oral Maxillofac Surg 2019 Oct 4. Pii: S0266-4356(19)30371-7. Doi: 10.1016/j.bioms.2019.09007.

Clauss-Ehlers C, Wibrowski CR. Building educational resilience and social support: the effects of the educational and opportunity fund program among first- and second-generation college students. J College Student Development 2007 September/October; 48: 574-584.

Cleverley K, Kidd SA. Resiliency and suicidality among homeless youth. J Adolescence 2011; 34: 1049-1054.

Coates EE. Overcoming adversity: resilience of low-income, nonresidential, black fathers. 2012. Graduate School Theses and Dissertations. http://scholarcommons.usf.wdu/etd/4014.

Coates EE, Phares V, Dedrick RF. Psychometric properties of the Connor-Davidson Resilience Scale 10 among low-income, African-American men. Psychol Assessment 2013; 25: 1349-1354.

Cohen DG, Christie JD, Anderson BJ, Diamond JM, Judy RP, Shah RJ, Cantu E, Bellamy SL, Blumenthal NP, Demissie E, Hopkins RO, Mikkelsen ME. Cognitive function, mental health, and health-related quality of life after lung transplant. Annals Am Thoracic Soc 2014; 11: 522-529.

Cohen MZ, Kupzyk KA, Holley LM, Katzman RM. Measuring resilience in two generations: psychometric properties of available instruments. J Nurs Meas 2017; 25: 332-352.

Cole C. Exploring the predictive value of moral attentiveness and resilience for exemplary organizational leadership. Dissertation for the degree of Doctor of Philosophy. Regent University. 2016. Unpublished. Accessed at https://search.proquest.com/openview/bf07f43593cd48e5c7c34bc7d1dcf394/1?pq-origsite=gscholar&cbl=18750&diss=y.

Compton MT, Bakeman R, Capulong L, et al. Associations between two domains of social adversity and recovery among persons with serious mental illnesses being treated in community mental health centers. Commun Mental Hlth J 2019; https://doi.org/10.1007/s10597-019-00462-0.

Cong EZ, Wu Y, Cai YY, et al. Association of suicidal ideation with family environment and psychological resilience in adolescents. Zhongguo Dang Dai Er Ke Za Zhi 2019 May; 21(5): 479-484.

Connell MA, Omole O, Subramaney U, Olorungu S. Post traumatic stress disorder and resilience in veterans who served in the South African border war. African J Psychiatry 2013; doi: http://dx.doi.org/10.4314/ajpsy.v16i6.55.

Connor KM, Davidson JRT. Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC). Depression and Anxiety, 2003: 18: 71-82.

Connor KM, Davidson JRT, Lee L-C. Spirituality, resilience, and anger in survivors of violent trauma: a community study. J Traumatic Stress, 2003; 16: 487-494.

Connor KM, Zhang W. Resilience: determinants, measurement and treatment responsiveness. CNS Spectrums, 2006; 11 (Suppl 12): 5-12.

Connor KM, Vaishnavi S, Davidson JRT, Sheehan DV, Sheehan KH. Perceived stress in anxiety disorders and the general population: a study of the Sheehan Stress Vulnerability Scale. Psychiatry Res, 2007; 151: 249-254.

Cosic K, Sarlija M, Ivkovic V, et al. Stress resilience assessment based on physiological features in selecton of Air Traffic Controllers. IEEE Access 2017. DOI 10.1109/ACCESS.2017.

Cosco TD, Kauschal A, Richards M, Kuh D, Stafford M. Resilience measurement in later life: a systematic review and psychometric analysis. Health and Quality of Life Outcomes 2016; 14: 16. DOI 10:1186/s12955-016-0418-6.

Cox J. Relationship satisfaction and resilience: military couples and deployment. Human Communication: A Publication of the Pacific and Asian Communication Association 2012; 15: 41-57.

Craig A, Perry KN, Guest R, Tran Y, Middleton J. Adjustment following chronic spinal cord injury: Determining factors that contribute to social participation. Br J Health Psychology 2015. DOI: 10.1111/bjhp.12143.

Craig A, Perry KN, Guest R, Tran Y, Dezarnaulds A, Hales A, Ephraums C, Middleton J. Prospective study of the occurrence of psychological disorders and comorbidities after spinal injury. Archives of Physical Medicine and Rehabilitation 2015. http://dx.doi.org/10.1016/j.apmr.2015.02.027.

Cronley C, Evans R. Studies of resilience among youth experiencing homelessness: A systematic review. J Hum Behav Soc Environ 2017. http://dx.doi.org/10.1080/10911359.2017.1282912.

Crosta ML, De Simone C, Di Pietro S, et al. Childhood trauma and fresilience in psoriatic patients: a preliminary report. J Psychosom Res 2018 Mar; 106: 25-28.

CTA White Paper: In-Theater Combat Operations Stress Reaction (COSR) Health Risk Assessment and Management. Computer Technology Associates Inc. Accessed Feb 25, 2009 (Study Project).

Cuomo C, Sarchiapone M, Di Giannantonio, Mancini M, Roy A. Aggression, impulsivity, personality traits, and childhood trauma of prisoners with substance abuse and addiction. Am J Drug Alcohol Abuse. 2008; 34: 339-345.

Curtis K, Hitzig SL, Bechsgaard G, Alton C, Saunders N, Leong N, Katz J. Evaluation of a specialized yoga program for persons with a spinal cord injury: a pilot randomized controlled trial. J Pain Research 2017; 10: 999-1015.

Dale S, Cohen M, Weber K, Cruise R, Kelso G, Brody L. Abuse and resilience in relation to HAART medication adherence and HIV viral load among women with HIV in the United States. AIDS Patient Care and STDs, 2014a; 28(3): 136-140.

Dale SK, Cohen MH, Kelso GA, Cruise RC, Weber KM, Burke-Miller JK, Brody LR. Resilience among women with HIV: Impact of silencing the self and socioeconomic factors. Sex Roles 2014b; 70: 221-231.

Dale SK, Weber KM, Cohen MH, Kelso GA, Cruise RC, Brody LR. Resilience moderates the association between childhood sexual abuse and depressive symptoms among women with and at-risk for HIV. AIDS Behav 2014c, http://doi.10.1007/s10461-014-0855-3.

Daniels JK, Hegadoren KM, Coupland NJ, Rowe BH, Densmore M, Neufeld RW, Lanius RA. Neural correlates and predictive power of trait resilience in an acutely traumatized sample: a pilot study. J Clin Psychiatry, 2012; 73: 327-332.

Das D, Cherbuin N, Tan X, Anstey KJ, Easteal S. DRD4-exonIII-VNTR moderates the effect of childhood adversities on emotional resilience in young-adults. PLOS One 2011; 6(5): e20177: 1-6.

Davidson JRT, Payne VM, Connor KM, Foa EB, Weisler RH. Trauma, resilience and saliostasis: effects of treatment in post-traumatic stress disorder. Int Clin Psychopharmacology, 2005; 20: 43-48.

Davidson JRT, Connor KM, Lee L-C. Beliefs in karma and reincarnation among survivors of violent trauma. A community study. Soc Psychiatry Psychiatr Epidemiol, 2005; 40: 120-125.

Davidson JRT, et al. Effects of paroxetine and venlafaxine XR on heart rate variability in depression. J Clin Psychopharmacology, 2005: 25: 480-484.

Davidson JRT, Baldwin DS, Stein DJ, Kuper E, Benattia I, Ahmed S, Petersen R, Musgnung J. Treatment of posttraumatic stress with venlafaxine extended-release. A 6 month controlled trial. Arch Gen Psychiatry, 2006a; 63: 1158-1165.

Davidson JRT, Rothbaum BO, Tucker P, Asnis G, Benattia I, Musgnung JL. Venlafaxine-extended release in posttraumatic stress disorder: a sertraline- and placebo-controlled study. J Clinical Psychopharmacology 2006b; 26: 259-267; ***and erratum 2006; 26: 473 on the matter of dosage***.

Davidson JRT, Stein DJ, Rothbaum BO, Petersen R, Tien XW, Musgnung J. Resilience as a predictor of remission in posttraumatic stress disorder. Poster presented at 19th Annual Meeting, US Psychiatric and Mental Health Congress, New Orleans, LA November 15-19, 2006c.

Davidson JR, Brady K, Mellman TA, Stein MB, Pollack MH. The efficacy and tolerability of tiagabine in adult patients with post-traumatic stress disorder. J Clin Psychopharmacol. 2007; 27(1): 85-88.

Davidson JRT, Baldwin DS, Stein DJ, Petersen R, Ahmed S, Musgnung JL, Benattia I, Rothbaum BO. Effects of venlafaxine extended-release in post-traumatic stress disorder: an item analysis of the Connor-Davidson Resilience Scale (CD-RISC). Int Clin Psychopharmacology, 2008; 23: 299-303.

Davidson JRT, Stein DJ, Rothbaum BO, Petersen R, Szumski A, Rothbaum BO. Resilience as predictor of treatment response in posttraumatic stress disorder patients treated with venlafaxine extended release or placebo. Journal of Psychopharmacology 2012; 26: 778-783.

Davidson JRT, Lee L-C. Forgiveness, resilience and violent trauma in the US population. Unpublished data, 2015.

Dawson EL, Mendoza MCB, Gaul Z, et al. Resilience, condom use self-efficacy, internalized homophobia, and condomless anal sex among black men who have sex with men, New York City. PLoS ONE 14: e0215455. https://doi.org/10.1371/journal.pone.0215455.

Deane FP, Andresen R. Evolution and sustainability of the Helping Hands Volunteer Program: consumer recovery and mental health comparisons six years on. Austr J Rehabilitation Counselling 2006; 12(2): 88-103. ***[See Erratum published in AJRC 2010; 16: 1. Note: Owing to incorrect scoring of the RISC, where a range of 1-5 was used, in contrast to the 0-4 range per item, the authors' revised their conclusion to state that the mean CD-RSC scores in schizophrenia were in fact lower than those found by Connor and Davidson in psychiatric outpatients].***

De Berardis D, Fornaro M, Valchera A, et al. Alexithymia, resilience, somatic sensations and their relationships with suicide ideation in drug naïve patients with first episode major depression: An exploratory study in the "real world" everyday clinical practice. Early Intervention in Psychiatry 2019; doi: 10.1111/eip.12863.

De Beurs DO, Fried EI, Wetherall K, et al. Exploring the psychology of suicidal ideation: a theory drive network analysis. 2018 Retrieved from osf.io/uwg9a.

Decroos S, Lines RLJ, Morgan PB, et al. Development and validation of the characteristics of resilience in sports teams inventory. Sport Exercise and Performance Psychology. In press, 2017).

Deen S, Turner MY, Wong RSK. The effects of REBT, and the use of credos, on irrational beliefs and resilience qualities in athletes. The Sport Psychologist 2017; 31: 249-263.

D’Emden H, McDermott B, D’Silva N, et al. Psychosocial screening and management of young people aged 18-25 years with diabetes. Intern Med J 2014; 47: 415-423.

D’Emden H, McDermott B, D’Silva N, Dover T, et al. Psychosocial screening amd management of young people aged 18-25 years with diabetes. Intern Med J 2017; 47(4): 415-423.

De la Fuente J, Fernandez-Cabezas M, Cambil M, et al. Linear relationship between resilience, learning approaches, and coping strategies to predict achievement in undergraduate students. Front Psychology 2017; DOI: 10.3389/fpsyg.2017.01039.

De Manincor M, Bensoussan A, Smith CA, Barr K, Schweickle M, Donoghoe L-L. Bourchier S, Fahey P. Individualized yoga for reducing depression and anxiety, and improving well-being: A randomized controlled trials. Depression and anxiety 2016 10.1002/da.22502.

Deng M, Pan Y, Zhou L, et al. Resilience and cognitive function in patients with schizophrenia, bipolar disorder, and healthy controls. Frontiers in Psychiatry 2018 June doi:10.3389/psyf.2018.00279.

Denz-Penhey H, Murdoch JC. Personal resiliency: serious diagnosis and prognosis with unexpected quality outcomes. Qualitative Health Res 2008; 18(3): 391-404. *(Comment: CD-RISC discussed but not used as a measure*).

De Robert SC, Barontini M, Forcada P, Carrizo P, Almada L. Psychological stress and low resilience: a risk factor for hypertension. Cardiovascular Prevention 2010; 78: 425-431.

Derakhshanrad SA, Piven E, Rassafiani M, Hosseini SA, Shahboulaghi FM. Standardization of Connor-Davidson Resilience Scale in Iranian subjects with cerebrovascular accident. J Rehabil Sci and Research 2014; 1: 73-77.

Derakshanrad SA, Piven E, Ghoochani BZ. Comparing the cognitive process of circular causality in two patients with strokes through qualitative analysis. Nonlinear Dynamics, Psychol & Life Sci 2017; 21: 555-567.

Derakshanrad SA, Piven E. The neuro-occupation model for occupational therapy: a correlational study. Iranian Rehab Journal 2017; 15: 351-358.

DeSimone JA, Harms PD, Vanhove AJ, Herian ML. Development and validation of the Five x Five Resilience Scale. Assessment 2016. DOI: 10.1177/1073191115625803.

Devilly GJ, Varker G. The prevention of trauma reactions in police officers. Decreasing reliance on drugs and alcohol. New recruit Victorian police officers. National Drug Law Enforcement Research Fund (NDLERF), GPO Box 2944, Canberra. ACT 2601. http://ndlerf.gov.au/sites/defalut/files/publication-documents/monographs/monograph47.pdf.

DiFabio A, Saklofskie DH. Promoting individual resources: the challenge of trait emotional intelligence. Personality and Individual Differences 2014; http://dx.doi.org/10.1016/j.paid.2014.01.026.

Dinsmore JA, Johnson N, Hoff DD. The relationship between college students' resilience level and type of alcohol use. International Journal of Psychology:A Biopsychosocial Approach 2011; 8: 67-82.

Dodd Z. Effects of adult romantic attachment and social support on resilience and depression in patients with acquired disabilities. Dissertation, University of North Texas. August 2010. Accessed at http://digital.library.unt.edu/ark:/67531/metadc30452/m2/1/high_res_d/dissertation.pdf.

Dodding CJ, Nasel DD, Murphy M, Howell C. All in for mental health: a pilot study of group therapy for people experiencing anxiety and/or depression and a significant other of their choice. Mental Health in Family Medicine 2008; 5: 41-49.

Dodman K, Moradi kor N. The relationship between spiritual intelligence and mental health and resilience of Iran's national hockey team. Indian J Natural Sciences 2015; 5: Issue 29 April: 3910-3915.

Dolbier CL, Jaggers SS, Steinhardt MA. Stress-related growth: pre-intervention correlates and change following a resilience intervention. Stress and Health 2009. DOI: 10.1002/smi.1275.

Dong Y, Li H. The relationship between social support and depressive symptoms among the college students of Liaonang, China: a moderated mediated analysis. Psychol Health Med 2019 Oct 19: 1-11. DOI: 10.1080/13548506.2019.1679844.

Dowrick C. Resilience and depression. Psychiatric Quarterly 2008; 1: 1-3. *(Comment: CD-RISC discussed but not used as a measure*).

Draper B, Ridley N, Johnco C, Withall A, Sim W, Freeman M, Contini E, Lintzeris N. Screening for alcohol and substance use for older people in geriatric hospital and community health settings. Int Psychogeriatrics 2014; 1-20. doi: 10.1017/S1041610214002014.

Dreer LE, Cox MK, McBrayer A, et al. Resilience among caregivers of injured service members; finding the strengths in caregiving. Arch Phys Med Rehabil 2019 Jan 23. Pii: S0003-9993(19)30009-7. Doi: 10.1016/j.apmr.2018.12.027 [Epub ahead of print]

Du H, Li X, Chi P, Zhao J, Zhao G. Meaning in life, resilience, and psychological well-being among children affected by parental HIV. AIDS CARE 2017. http://dx.doi.org/10.1080/09540121.2017.1307923.

Duan W, Guo P, Gan P. Relationships among trait resilience, virtues, post-traumatic stress disorder, and post-traumatic growth. PLoS ONE 2015; DOI:10.1371/journal.pone.0125707. May 1.

Dubey C, DeMaria J, Hoeppli C, Betticher DC, Eicher M. Resilience and unmet supportive care needs in patients with cancer during early treatment: a descriptive study. Eur J Oncol Nursing 2015. http//dx.doi.org/10.1016/j.ejon.2015.03.004.

Dunn BD, Widnall E, Reed N, et al. Evaluating Augmented Depression Therapy (ADePT): study protocol for a pilot randomized controlled trial. Pilot and Feasibility Studies 2019 5: 63. https://doi.org/10.1186/s40814-019-0438-1.

Duong C, Hurst CP. Reliability and validity of the Khmer version of the 10-item Connor-Davidson Resilience Scale (Khmer CD-RISC-10) in Cambodian adolescents. BMC Res Notes 2016 Jun 8: 9(1): 297. doi: 10.1186/s13104-016-2088-y.

Durbin A. Nisenbaum R, Kopp B, et al. Are resilience and perceived stress related to social support and housing stability among homeless adults with mental illness? Health Soc Care Community 2019 Feb 7. Doi: 10.1111/hsc.12722. [Epub ahead of print].

Durish CL, Yeates KO, Brooks BL. Psychological resilience as a predictor of symptom severity in adolescents with poor recovery following concussion. J Int Neuropsychol Soc 2019; 25: 346-354.

Dutton MA, Greene R. Resilience and crime victimization. J Traumatic Stress 2010; 23: 215-222. *(Review article).*

Dyrbye LN, Shanafelt TD, Gill PR, et al. Effect of a professional coaching intervention on the well-being and distress of physicians: A pilot randomized clinical trial. JAMA Int Med 2019; 179: 1406-1414.

Ebrahimi A, Keykhosrovani M, Dehghani M, Javdan M. Investigating the relationship between resiliency, spiritual intelligence and mental health of a group of undergraduate students. Life Science Journal 2012; 9:67-70.

Edraki M, Rambod M. Psychological predictors of resilience in parents of insulin-dependent children and adolescents. IJCBNM 2018; 6: 239-249.

Edward K-L, Chipman M, Stephenson J, et al. Recovery in early stage breast cancer – An Australian longitudinal study. Int J Nurs Pract 2019; e12747. https://doi.org/10.1111/ijn.12747.

Ehrich J, Mornane A, Powern T. Psychometric validation of the 10-item Connor-Davidson Resilience Scale. J Appl Meas 2017; 18: 122-136.

Eicher M, Ribi K, Senn-Dubney C, et al. Inter-professional, psycho-social intervention to facilitate resilience and reduce supportive care needs for patients with cancer: Results of a non-comparative, randomized phase II trial. Psychooncology 2018 Apr 14. Doi: 10.1002/pon.4734. [Epub ahead of print].

Eisenach JH, Sprung J, Clark MM, Shanafelt TD, Johnson BD, Kruse TN, Chantigian DP, Carter JR, Long TR. The psychological and physiological effects of acute occupational stress in new anesthesiology residents. A pilot trial. Anesthesiology 2014; 121: 876-893.

Elbogen EB, Johnson SC, Wagner HR, Newton VM, Timko C, Vasterling JJ, Beckham JC. Protective factors and risk modification of violence in Iraqi and Afghanistan war veterans. J Clin Psychiatry 2012; 73: e767-e773.

Elbogen EB, Wagner HR, Kimbrel NA, et al. Risk factors for concurrent suicidal ideation and violent impulses in military veterans. Psychol Assessment 2017. http://dx.doi.org/10.1037/pas0000490.

Elizondo-Omana R, et al. Resilience in medical students. Surg Radiol Anat 2007; 29: 450 (abstract).

Elizondo-Omana R, Lopez SG. Resilience as a factor associated with academic success. The FASEB Journal 2008; 22: lb9 (abstract). 9th Congress of the European Association of Clinical Anatomy, Prague. 2007; 11-15. ***[Erratum: Elizondo-Omana RE, Garcia-Rodriguez M de L, Hinojosa-Amaya JM, Villareal-Silva EE, Avilan RIG, Cruz JJB, et al. Resilience does not predict academic performance in gross anatomy. Anat Sci Educ 2010; 3: 168-173. Erratum published Anat Sci Educ 2011; 4: 56].***

Elizondo-Omana RE, Garcia-Rodriguez M de L, Hinojosa-Amaya JM, Villareal-Silva EE, Avilan RIG, Cruz JJB, et al. Resilience does not predict academic performance in gross anatomy. Anat Sci Educ 2010; 3: 168-173.

Elliott D. Facebook, resilience and army spouses with combat deployment. Dissertation submitted to Wake Forest University Graduate School of Arts and Sciences. May 2011. Accessed at http://wakepsace.lib.wfu.edu/jspui/handle/10339/33435.

Elliott TR, Hsaio Y-Y, Kimbrel NA, et al. Resilience, traumatic brain injury, depression, and posttraumatic stress among Iraq/Afghanistan War Veterans. Rehab Psychology 2015; 60(3): 263-276.

Elliott TR, Hsaio Y-Y, Kimbrel NA, Meyer E, et al. Resilience and traumatic brain injury among Iraq/Afghanistan War Veterans: Differential patterns of adjustment and quality of life. J Clinical Psychology 2016 2016. DOI: 10.1002/jclp.22414.

Enrique A, Mooney O, Salamanca-Sanabria A, Lee CT, et al. Assessing the efficacy and acceptability of an internet-delivered intervention for resilience among college students: A pilot randomize control trial protocol. Internet Interv 2019 Jun 18; 17: 100254. Doi: 10.1016/j.invent.2019.100254. eCollection 2019 Sep

Extremera MO, Moreno EO, Gonzalez MC, Ortega FZ, Ruiz RP. Validation of Resilience Scale (CD-RISC) in elite athletes through structural equation model. Retos 2017; 32: 96-100.

Fadardi JS, Azad H, Nemati A. The relationship between resilience, motivational structure, and substance use. Procedia Soc Behav Sci 2010; 5: 1956-1960.

Faria Anjos J, Dos Santos H, Ribeiro MT, Moreira S. Connor-Davidson Resilience Scale: validation study in a Portuguese sample. BMJ Open 2019 Jun 27;9(6); e026836. Doi: 10.1136/bmjopen-2018-026836.

Farkas D, Orosz G. Ego-resiliency reloaded: a three-component model of general resiliency. PLoS ONE 2015, March 27. DOI:10.1371/journal.pone.0120883. ***[Scale scored on 1-5 range]***.

Fernandez AC, Fehon DC, Treloar H, Ng R, Sledge WH. Resilience in organ transplantation: an application of the Connor-Davidson Resilience scale (CD-RISC) with liver transplant candidates. J Personality Assessment 2015; DOI: 10.1080/00223891.2015.1029620.

Firoozi M, Besharat MA, Boogar ER. Emotional regulation and adjustment to childhood cancer: role of the biological, psychological and social regulators on pediatric oncology adjustment. Iran J Cancer Prev 2013; 2: 65-72.

Fjeldheim CB, Nöthling J, Pretorius K, Basson M, Ganasen K, Heneke R. Trauma exposure, posttraumatic stress disorder and the effect of explanatory variables in paramedic trainees. BMC Emergency Medicine 2014; 14:11; 1-7.

Fougere A, Daffern M. Resilience in young offenders. Int J Forensic Mental Health 2011; 10: 244-253. *(Review article).*

Fradelos EC, Papathanasiou IV, Veneti A, et al. Psychological distress and resilience in women diagnosed with breast cancer in Greece. Asian Pac J Cancer Prev 2017; 18(9): 2545-2550.

Fradelos EC, Latsou D, Mitsi D, et al. Assessment of the relation between religiosity, mental health, and psychological resilience in breast cancer patients. Contemp Oncol (Pozn) 2018; 22: 172-177.

Franco C, Amutio A, Manas I, Sanchez-Sanchez LC, et al. Improving psychosocial functioning in mastectomized women through a mindfulness-based program: flow meditation. Int J Stress Management 20109 http://dx.doi.org/10.1037/str0000120.

Fu C, Leoutsakos J-M, Underwood C. An examination of resilence cross-culturally in child and adolescent survivors of the 2008 China earthquake using the Connor-Davidson Resilience Scale (CD-RISC). J Affective Dis 2013, http://dx.doi.org/10.1016/j.jad.2013.10041.

Fu C, Leoutsakos J-M, Underwood C. Moderating effects of a post-disaster intervention on risk and resilience factors associated with posttraumatic stress disorder in Chinese children. J Traumatic Stress 2013; 26: 663-670.

Fujikawa M, Lee E-J, Chan F, Catalano D, Hunter C, Bengtson K, Rahimi M. The Connor-Davidson Resilience Scale as a positive psychology measure for people with spinal cord injuries. Rehabilitation Research, Policy, and Education 2013; 27: 213-222.

Fyncham DS, Altes LK, Stein DJ, Seedat S. Posttraumatic stress disorder symptoms in adolescents: risk factors versus resilience moderation. Comprehensive Psychiatry 2009; 50: 193-199.

Gabriel AS, Dieffendorf JM, Erickson RJ. The relations of daily task accomplishment satisfaction with changes in affect: a multilevel study in nurses. J Applied Psychology 2011; 96: 1095-1104. ***(Note in text on the corrected scoring – it should be 66.49, rather than 91.49).***

Gaddy JW, Gonzalez SP, Lathan CA, Graham PK. The perception of authentic leadership on subordinate resilience. Military Behavioral Health 2016. http://dx.doi.org/10.1080/21635781.2016.1243495.

Ganguly R, Perera HN. Profiles of psychological resilience in college students with disabilities. J Psychoeduc Assess 2019; 37: 635-651.

Garcia-Izquierdo AL, Ramos-Villagrasa PJ, Garzia-Izquierdo M. Los *Big Five* y el efecto moderador de la resistencia en el agotamiento emocional (*Big Five* factors and resiliency moderator effect on emotional exhaustion). Rev de Psicologia del Trabajo y de las Organizaciones 2009; 25 (2): 135-147.

Garcia GM, Calvo JCA. Emotional exhaustion of nursing staff: influence of emotional annoyance and resilience. International Nursing Review 2011; 101-107.

Garcia GM, Calvo JCA. Psychometric properties of Connor-Davidson Resilience Scale in a Spanish sample of entrepreneurs. Psicothema 2013; 25: 245-251.

Gayton SD, Lovell GP. Resilience in ambulance service paramedics and its relationships with well-being and general health. Traumatology 2012; 18: 58-64.

Genet JJ, Siemer M. Flexible control in processing affective and non-affective material predicts individual differences in trait resilience. Cognition and emotion 2013; 25: 380-388.

Gesundheit B, Reichenberg E, Strous RD. Resilience: message from a “Mengele twin” study. Psychiatric Services 2011; 62: 1127-1129.

Ghisi M, Novara C, Buodo G, Kimble MO, Scozzari S, Di Natale A, Sanavio E, Palomba D. Psychological distress and post-traumatic symptoms following occupational accidents. Behav Sci 2013; 3: 587-600.

Gialluisi A, Bonaccio M, Di Castelnuovo A, et al. Lifestyle and biological factors influence the relationship between mental health and low-grade inflammation. Brain, Behavior, and Immunity 2019. https://doi.org/10.1016/j.bbi.2019.04.041.

Gianesini G. Alexithymia Dimensions and Perceived Parenting Styles. In L’Abate L., and Cuisinato M. (Eds.). Advances in Relational Competence

Theory with Special Attention to Alexithymia. Nova Publishers 2012; 173-202.

Giesbrecht T, Abidi K, Smeets T, Merckelbach H, van Oorsouw K, Raymaekers L. Adversity does not always lead to psychopathology: cognitive reactivity is related to longitudinal changes in resilience. Netherlands J Psychology, 2009; 65: 62-68.

Gifford RM, O'Leary TJ, Double RL, et al. Positive adaptation of HPA axis function in women during 44 weeks of infantry-based military training. Psychoneuroendocrinology 2019. https://doi.org/10.1016/j.psyneuen.2019.104432.

Gillespie BM, et al. The influence of personal characteristics on the resilience of operating room nurses: a predictor study. International Journal of Nursing Studies, doi:10.1016/j.ijnurstu.2007.08.006.

Gillespie BM, Chaboyer W, Wallis M, Grimbeek P. Resilience in the operating room: developing and testing of a resilience model. J Advanced Nursing, 2007; 59(4): 427-438.

Gillespie RJ, Folger AT. Feasibility of assessing parental ACEs in pediatric primary care: implications for practice-based implementation. J Child Adol Trauma 2017 DOI: 10.1007/s40653-017-0138-z.

Gillispie SK, Britt TW, Burnette CM, McFadden AC. Employee mental health treatment seeking: perceptions of responsibility and resilience. J Workplace Behavioral Health 2016; 31: 1-18.

Glass O, Dreusicke M, Evans J, Bechard E, Wolever RQ. Expressive writing to improve resilience to trauma: a clinical feasibility trial. Complement Ther Clin Pract 2019; 34: 240-246.

Glogovac G, Schumaier AP, Kennedy ME, et al. Narcotic use and resiliency scores do not predict changes in sleep quality 6 months after arthroscopic rotator cuff repair. Orthop J Sports Med 2019 Jul 15;7(7):2325967119856282. Doi: 10.1177/2325967119856282.

Gmuca S, Xiao R, Urquhart A, et al. The role of patient and parental resilience in adolescents with chronic musculoskeletal pain. J Pediatr 2019

Apr 10. Pii: S0022-3476(19)30293-8. Doi: 10.1016/j.peds.2019.03.006. [Epub ahead of print].

Goins RT, Gregg JJ, Fiske A. Psychometric properties of the Connor-Davidson Resilience Scale with older American Indians: the Native Elder Study. Research on Aging 2012; doi:10.1177/0164027511431989.

Goldstein AL, Faulkner B, Wekerle C. The relationship among internal resilience, smoking, alcohol use, and depression symptoms in emerging adults transitioning out of child welfare. Child Abuse & Neglect, 2013: 37: 22-32.

Golezar S, Ramezani-Tehrani F, Ebadi A, et al. Coping with primary ovarian insufficiency in Iranian women: A qualitative study. J Isfahan Medical School 2019; 37(529(: 608-616.

Gong Y, Shi J, Ding H, et al. Personality traits and depressive symptoms: The moderating and mediating effects of resilience in Chinese adolescents. J Affect Disord 2019 Nov 22. Pii: S0165-0327(19)31478-8. Doi: 10.1016/j.jad.2019.11.102. [Epub ahead of print].

Gonzalez Castro F, Rios R. Early life correlates of resilient coping among drug users in recovery. Poster presentation at 13th Annual Meeting, Society for Prevention Research, Washington, DC. May 27, 2005.

Gonzalez SP, Moore EWG, Newton M, Galli NA. Validity and reliability of the Connor-Davidson Resilience Scale (CD-RISC) in competitive sport. Psychology of Sport and Exercise 2016; 23: 31-39.

Gonzalez VBA, Sierra MTC, Martinez BA, Martinez-Molina A, Ponce FP. An in-depth psychometric analysis of the Connor-Davidson Resilience Scale: calibration with the Rasch-Andrich model. Health and Quality of Life Outcomes 2015; 13: 154. DOI: 10.1186/s12955-015-0345-y.

Gottert A, Friedland B, Geibel S, et al. The People Living with HIV (PLHIV) Resilience Scale: Development and validation in three countries in the context of the PLHIV stigma index. AIDS and Behavior. https://doi.org/10.1007/s10461-019-02594-6. (RISC referenced but not used).

Gowenlock L. The use of meditation to promote resilience in deployed medical personnel. Accessed 08-22-2014 at http://www.theracoustic.com/sites/default/files/US_Army_Study.pdf.

Graham C. The influence of psychological strengths on health of older Australians receiving minimal community support. Poster presentation, Symposium “Sustaining Optimal Ageing”, 3rd International Conference on Healthy Aging and Longevity. Melbourne, VIC, Australia, October 14, 2006.

Graham DP, Helmer DA, Harding MJ, Kosten TR, Petersen NJ, Nielsen DA. Serotonin transporter genotype and mild traumatic brain injury independently influence resilience and perception of limitation in veterans. J Psychiatric Research 2013; 47: 835-842.

Gras M-E, Font-Mayolas S, Baltasar A, et al. The Connor-Davidson Resilience Scale (CD-RISC) amongst young Spanish Adults. Clinica y Salud 2019. Ahead of print. https://ww.doi.org/10.5093/clysa2019a1.

Grattan LM, Roberts S, Mahan WT Jr., McLaughlin KJ, Otwell WS. The early psychological impacts of the Deepwater Horizon Oil Spill on Florida and Alabama communities. Environ Health Perspectives 2011; 119: 838-843.

Green KT, Calhoun PS, Dennis MF, the Mid-Atlantic Mental Illness Research, Education and Clinical Center Workgroup; and Beckham JC. Exploration of the resilience construct in posttraumatic stress disorder severity and functional correlates in military combat veterans who have served since September 11, 2001. Journal of Clinical Psychiatry 2010; 71: 823-830.

Green KT, Hayward LC, Williams AM, Dennis PA, Bryan BC, Taber KH, Davidson JRT, Beckham JC, Calhoun PS. Examining the factor structure of the Connor-Davidson Resilience Scale (CD-RISC) in a post 9/11 U.S. military veteran sample. J Psychological Trauma, Theory, Research, Practice and Policy. 2014; DOI: 10.1177/1073191114524014.

Green KT, Beckham JC, Youssef N, Elbogen EB. Alcohol misuse and psychological resilience among U.S. Iraq and Afghanistan era veterans. Addictive Behav 2014; 39: 406-414.

Grobman WA, Parker C, Wadhwa C, et al. Racial/ethnic disparities in measures of self-reported psychosocial states and traits during pregnancy. Am J Perinatology 2016; Aug 8. [Epub ahead of print].

Grobman WA, Parker CB, Willinger M, et al. Racial disparities in adverse pregnancy outcomes and psychosocial stress. Obstet and Gynecol 2018; 131: 328-335.

Gucciardi DF, Gordon S. Development and preliminary validation of the Cricket Mental Toughness Inventory (CMTI). Journal of Sports Sciences 2009; 27: 1293-1310.

Gucciardi DF, Jackson B, Coulter TJ, Mallett CJ. The Connor-Davidson Resilience Scale (CD-RISC): dimensionality and age-related measurement invariance with Australian cricketers. Psychology of Sport and Exercise 2011, doi:10.1016/jpsychsport.2011.02.005.

Guest R, Perry KN, Ephraums C, Hales A, Crino R, Craig A, Tran Y, Dezarnaulds A, Middleton J. Resilience following spinal cord injury: a prospective controlled study investigating the influence of the provision of group cognitive behavior therapy during inpatient rehabilitation. Rehabilitation Psychology 2015. Doi.org/10.1037/rep0000052.

Guihard G, Deumier L, Alliot-Licht B, Bouton-Kelly L, Michaut C, Quilliot F. Psychometric validation of the French version of the Connor-Davidson Resilience Scale. Encephale 2017 Sep 1. Doi: 10.1016/j.encep.2017.06.002 [Epub ahead of print].

Gulbrandsen C. Measuring older women's resilience: Evaluating the suitability of the Connor-Davidson Resilience Scale and the Resilience Scale. J Women & Aging 2016. DOI: 10.1080/08952841.2014.951200.

Guo M, Wang C, Yin X, et al. Symptom clusters and related factors in oesophageal cancer patients three months after surgery. J Clin Nurs 2019 Jun 4. Doi: 10.1111/jocn.14935. [Epub ahead of print].

Guo YF, Luo YH, Lam L, Cross W, Plummer V, Zhang JP. Burnout and its association with resilience in nurses: A cross-sectional study. J Clin Nurs 2017 Jul 5. doi: 10.1111/jocn.13952. [Epub ahead of print].

Guo YF, Plummer V, Lam L, Wang Y, Cross W, Zhang J. The effects of resilience and turnover intention on nurses' burnout: Findings from a comparative cross-sectional study. J Clin Nursing 2018 Aug 2. Doi: 10.1111/jocn.14637.

Gupta A, Love A, Kilpatrick La, et al. Morphological brain measures of cortico-limbic inhibition related to resilience. J Neurosci Res 2016 Dec 28. Doi: 10.1002/jnr24007. [Epub ahead of print].

Ha RY, Kang JI, An SK, Cho H-S. Some psychological correlates affecting recognition of neutral facial emotion in young adults. J Korean Neuropsychiatric Association 2009; 48: 481-487.

Haase L, Stewart JL, Youssef B, May AC, Isakovic S, Simmons AL, Johnson DC, Potterat EG, Paulus MP. When the brain does not adequately feel the body: Links between low resilience and interoception. Biological Psychology 2016; 113: 37-45.

Habibpour Z, Mahmoudi H, Nir MS, Areshtanab HN. Resilience and its predictors among the parents of children with cancer: a descriptive-correlational study. Ind J Palliat Care 2019; 25: 79-83.

Hamel CJ, Jackson DS. Highlights of the 2008 Institute on Psychiatric Services. Psychiatric Services 2009; 60: 11-16.

Hammermeister J, Pickering MA, McGraw L, Ohlson C. The relationship between sport related psychological skills and indicators of PTSD among Stryker Brigade soldiers: the mediating effects of perceived psychological resilience. J Sports Behavior 2012; 35: 40-60. ***[Note: CD-RISC was scored 1-5. Corrected means are given in table and text of the manual].***

Hanks RA, Rapport LJ, Perrine RW, Millis SR. Correlates of resilience in the first 5 years after traumatic brain injury. Rehabilitation Psychology. 2016, February 8. Advance publication, http://dx.doi.org/10.1037/rep0000069.

Hansen L, Thomassen R. Neurocognition in schizophrenia measured with the MATRICS Consensus Cognitive Battery in a young adult population. Department of Psychology, University of Oslo. Accessed at http://www.duo.uio.no/bitstream/handle/123456789/17916/FinalxThesis_27.04.10.pdf?sequence=2.

Hao R, Dong H, Zhang R, et al. The relationship between neuroticism fit and general wellbeing: The mediating effect of resilience. Frony Psychol 2019 Oct 4; 102219. DOI: 10.3389/fpsyg.2019.02219.

Harrer M, Adam SH, Fleischmann RJ, et al. Effectiveness of an internet- and app-based intervention for college students with elevated stress: randomized controlled trial. J Internet Med Res 2018 http://www.jmir.org/2018/4/e136/.

Harrer M, Apolinario-Hagen J, Fritsche L, et al. Internet- and app-based stress intervention with distance-learning students with depressive symptoms: protocol of a randomized controlled trial. Front Psychiatry 2019 doi: 10.3389/fpsyt.2019.00361.

Hartley MT. Examining the relationships between resilience, mental health, and academic persistence in undergraduate college students. J American College Health 2011; 59: 596-602.

Hartley MT. Assessing and promoting resilience: an additional tool to address the increasing number of college students with psychological problems. J College Counselling 2012; 15: 37-48.

Harvey C, Palmer J, Willis E, et al. The evaluation of nurse navigators in chronic and complex care. J Adv Nurs 2019. DOI: 10.1111/jan.14041.

Hatamizadeh N, Adibsereshki N, Kazemnejad A, et al. Randomized trial of a resilience intervention on resilience, behavioral strengths and difficulties of mainstreamed adolescent students with hearing loss. Int J Pediatr Otorhinolaryngol 2019 Oct 12; 128: 109722. DOI: 10.1016/j.ijporl.2019.109722.

Hayter MR, Dorstyn DS. Resilience, self-esteem and self-compassion in adults with spina bifida. Spinal Cord 2013; DOI 10.1038/sc.2013.152.

He F, Cao R, Feng Z, Guan H, Peng J. The impacts of dispositional optimism and psychological resilience on the subjective well-being of burn patients: a structural equation modeling analysis. PLoS ONE 2013; 8(12): 1-5 (e82939).

He FX, Turnbull B, Kirshbaum MN, Phillips B, Klainin-Tobias P. Assessing stress, protective factors and psychological well-being among undergraduate nursing students. Nurse Education Today 2018; 68: 4-12.

He S, Wang J, Ji P. Validation of the Pain Resilience Scale in Chinese-speaking patients with TMD pain. J Oral Rehabil 2017 Dec 4. Doi: 10.1111/joor.12591 [Epub ahead of print] and 2018; 45: 191-197.

Hébert M, Parent N, Simard C, Laverdiere A. Validation of the French-Canadian version of the Brief Connor-Davidson Resilience Scale (CD-RISC-10). Canadian J Behav Sciences 2019; 50: 9-16.

Hegney DG, Rees CS, Eley R, Osseiran-Moisson R, Francis K. The contribution of individual psychological resilience in determining the professional quality of life of Australian nurses. Frontiers in Psychology Published 31 October 2015. DOI: 10.3389/fpsyg.2015.01613.

Helmreich I, Kunzler A, Chmitorz A, et al. Psychological interventions for resilience enhancement in adults (Protocol). Cochrane database of Systematic reviews 2017, Issue 2, Art. No.: CD012527. Doi: 10.1002/14651858.CD012527.

Hemmings SMJ, Martin LJ, Klopper M, van der Merwe L, Aitken L, de Wit E, Black GF, Hoal FG, Walzl G, Seedat S. *BNDF Val66Met* and *DRD2 Taq1A* polymorphisms interact to influence PTSD symptom severity: A preliminary investigation in a South African population. Progress in Neuro-Psychopharmacology & Biological Psychiatry 2013; 40: 273-280.

Henley R, Schweitzer I, de Gara F, Vetter S. How psychosocial sport & play programs help youth manage adversity: a review of what we know & what we should research. Int J Psychosoc Rehab 2007; 12: 51-58 *(Review article)*

Henry BJ. Quality of life and resilience : Exploring a fly-fishing intervention for breast cancer survivors. Clin J Oncol Nurs 2017 Feb 1 ;21(1) :E9-E14. Doi : 10.1188/17.CJON.E9-E14.

Heo EH, Choi KS, Yu JC, Nam JA. Validation of the Center for Epidemiological Studies Depression Scale among Korean adolescents.

Psychiatry Investig 2018 ; 15 : 124-132, and personal communicaton 4/17/2018..

Herbert HS, Manjula M, Philip M. Growing up with a parent having schizophrenia : experiences and resilience in the offsprings. Indian J Psychological Medicine 2013 ; 35 : 148-153.

Heritage B, Rees CS, Osseiran-Moisson R, et al. A re-examination of the individual differences approach that explains occupational resilience and psychological adjustment among nurses. J Nurs Manag 2019. DOI : 10.1111/jonm.12820.

Herrero R, Mira A, Cormo G, et al. An internet based intervention for improving resilience and coping strategies in university students….. Internet Interv 2018 ; 22 : 43-51.

Hillebregt CF, Scholten EWM, Ketelaar M, et al. Effects of family group conferences among high-risk patients of chronic disability and their significant others : study protocol for a multicentre trial. BMJ Open 2018 ; 8 : e018883. Doi : 10.1136/bmjopen-2017-018883.

Hinduja S, Patchin JW. Cultivating youth resilience to prevent bullying and cyber bullying victimization. Child Abuse & Neglect 2017; 73: 51-62. ***(Note : Authors reverse scored two items in the CD-RISC-10).***

Horvath MAH, Massey K. The impact of witnessing other people's trauma: The resilience and coping strategies of members of the Faculty of Forensic and Legal Medicine. J Forensic Leg Med 2018 ; 55 : 99-104.

Hoseiny H, Jadidi M, Nataj LH, Saberi-Zafarghandi MB. The effect of methadone-maintenance therapy with and without interactive treatment on improving emotion-regulation strategies and resilience among opiate-dependent clients/ Int J High Risk Behav Addict 2015 March ; 4(1) : e23526. DOI : 10.58129/ijhrba.23526.

Hosseini HA, Besharat MA. Relation of resilience with sport achievement and mental health in a sample of athletes. Procedia Social and Behavioral Sciences 2010 ; 5 : 633-638.

Houpy JC, Lee WW, Woodruff JN, Pincavage AT. Medical student resilience and stressful clinical evetns during clinical training. Med Edu Online 2017 ; 22(1) :1320187. Doi : 10.1080/10872981.2017.1320187.
Hourani L, Bender RH, Weimer B, Peeler R, Bradshaw M, Lane M, Larson G. Longitudinal study of resilience and mental health in marines leaving military service. J Affective Disorders 2012 ; 139 : 154-165.

Hu T, Xiao J, Peng J, et al. Relationship between resilience, social support as well as anxiety/depression of lung cancer patients : A cross-sectional observational study. J Cancer Research and Therapeutics 2018 ; 14 : 72-77.

Hu Y-Q, Gan Y-Q. Development and psychometric validity of the Resilience Scale for Chinese Adolescents. Acta Psychologica Sinica, 2008; 40: 902-912.

Huang M-F. Resilience in chronic disease: the relationship among risk factors, protective factors, adaptive outcomes, and the level of resilience in adults with diabetes. Thesis, University of Queensland. Accessed 4/22/2010 at http://eprints.qut.edu.au/30313/.

Huang Y, Huang Y, Bao M, et al. Psychological resilience of women after breast cancer surgery: a cross-sectional study of associated influencing factors. Psychol Health Med 2019 Feb 5: 1-13. Doi: 10.1080/13548506.2019.1574353. [Epub ahead of print]

Iadipaolo AS, Marusak HA, Paulisin SM, et al. Distinct neural correlates of trait resilience within core neurocognitive networks in at-risk children and adolescents. Neuroimage: Clinical 2018; 20: 24-34.

Imai R, Hori H, Itoh M, et al. Relationship of blood proinflammatory markers with psychological resilience and quality of life in civilian women with posttraumatic stress disorder. Scientific Reports 2019 9:17905. https://doi.org/10.1038/s41598-019-54508-0.

Innes S. The relationship between levels of resilience and coping styles in chiropractic students and perceived levels of stress and well-being. J Chiropractic Education 2016. Jul 26. [Epub ahead of print]

Irmansyah, Dharmono S, Maramis A, Minas H. Determinants of psychological morbidity in survivors of the earthquake and tsunami in Aceh and Nias. Int J Mental Health 2010; 4:8, 1-10.

Ito M, Nakajima S, Shirai A, Kim Y. Cross-cultural validity of the Connor-Davidson Scale: data from Japanese population. Poster presented at 25th Annual Meeting, International Society of Traumatic Stress Studies (ISTSS), Atlanta, GA, November 2009.

Jafari E, Eskandari H, Sohrabi F, Delavar A, Heshmati R. Effectiveness of coping skills training in relapse prevention and resiliency enhancement in people with substance dependency. Procedia Social and Behavioral Sciences 2010; 5: 1376-1380.

Jalilianhasanpour R, Williams B, Gilman I, et al. Resilience linked to personality dimensions, alexithymia and affective symptoms in motor functional neurological disorders. J Psychosom Res 2018 107; 55-61.

Jang SH, Ryu HS, Choi SC, Lee HJ, Lee SY. Psychological factors influence the Overlap Syndrome in functional gastrointestinal disorders (Fgids) among middle aged women in South Korea. Women Health 2017 Jan 17. Doi: 10.1080/03630242.2017.1282394. [Epub ahead of print].

Jeon HJ, Bang YR, Park HY, Kim SA, Yoon IY. Differential effects of circadian typology on sleep-related symptoms, physical fatigue and psychological well-being in relation to resilience. Chronobiol Int 2017 Apr 27:1-10. Doi: 10.1080/07420528.2017.1309425. [Epub ahead of print].

Jeon SW, Han C, Choi J, Ko Y-H, Yoon H-K, Kim Y-K. Eye movement desensitization and reprocessing to facilitate posttraumatic growth: a prospective clinical pilot study on ferry disaster survivors. Clin Psychopharmacol and Neurosci 2017; 15: 320-327.

Jeong H, Chung Y-A, Ma J, et al. Diverging roles of the anterior insula in trauma-exposed individuals vulnerable or resilient to posttraumatic stress disorder. Scientific Reports Nature Research. 2019. https://doi.org/10.1038/s41598-019-51727-3.

Jeong HS, Kang I, Namgung E, Im JJ, Jeon Y, Som J, Yu S, Kim S, Yoon S, Lyoo IK, Chung Y-A, Lim J, Kim JE. Validation of the Korean version of the Connor-Davidson Resilience Scale-2 in firefighters and rescue workers. Comprehensive Psychiatry 2015; 59: 123-128.

Jeste DV, Savia GN, Thompson WK, Vahia IV, Glorioso DK, Martin AS, Palmer BW, Rock D, Golshan S, Kraemer HC, Depp CA. Association between older age and more successful aging: critical role of resilience and depression. American Journal of Psychiatry 2013; 170: 188-196.

Jeste DV, Glorioso D, Lee EE, et al. Study of independent living residents of a continuing care senior housing community: Sociodemographic and clinical associations of cognitive, physical and mental health. Am J Geriatr Psychiatry 2019; 27: 895-907.

Jiao M, Gu J, Xu H, et al. Resilience associated with mental health problems among methadone maintenance treatment patients in Guangzhou, China. AIDS Care 2016.http://dx.doi.org/10.1080/09540121.2016.1255705.

Johnson DC, Polusny MA, Erbes CR, King D, King L, Litz BT, Schnurr PP, Friedman MJ, Pietrzak RH, Southwick SM. Development and initial validation of the Response to Stressful Experiences Scale. Military Medicine 2011; 176: 2-16.

Johnson N, Dinsmore JA, Hof DD. The relationship between college students' resilience level and type of alcohol use. Int J Psychology: A Biopsychosocial Approach 2011; 8: 67-82.

Jones KF, Simpson G, Briggs L, et al. A study of whether individual and dyadic relations between spirituality and resilience contribute to psychological adjustment among individuals with spinal cord injuries and their family. Clin Rehabil 2019 May 6:269215519845034. doi: 10.1177/0269215519845034. [Epub ahead of print]

Jones S, Joyal CC, Cisler JM, Bal S. Exploring emotion regulation in juveniles who have sexually offended: an fMRI study. J Child Sexual Abuse 2017. http://dx.doi.org/10.1080/10538712.2016.1259280.

Jones-Bitton A, Best C, MacTavish J, et al. Stress, anxiety, depression, and resilience in Canadian farmers. Soc Psychiatry Epidemiol 2019 Jun 13. Doi: 10.1007/s00127-019-01738-2.

Jongbloed K, Friedman AJ, Pearce ME, Van der Kop ML, et al. The Cedar Project WelTel mHealth intervention for HIV prevention in young indigenous people who use illicit drugs: study protocol for a randomized controlled trial. Trials 2016. DOI: 10.1186/s13063-016-1250-3.

Jørgensen IE, Seedat S. Factor structure of the Connor-Davidson Resilience Scale in South African adolescents. Int J Adolesc Med Health, 2008; 20: 23-32.

Jowkar B. The mediating role of resilience in the relationship between general and emotional intelligence and life satisfaction. Contemporary Psychology (Persian) 2007; 2: 3-12.

Jowkar B, Friborg O, Hjemdal O. Cross-cultural validation of the Resilience Scale for Adults (RSA) in Iran. Scandinavian Journal of Psychology 2010; 51: 418-425.

Joyce S, Tan L, Shand F, Bryant RA, et al. Can Resilience be Measured and Used to Predict Mental Health Symptomology Among First Responders Exposed to Repeated Trauma? J Occup Environ Med. 2019 Apr;61(4):285-292. doi: 10.1097/JOM.0000000000001526.

Joyce S, Shand F, Lal TJ, et al. Resilience@Work mindfulness program: results from a cluster randomized controlled trial with first responders. J Med Internet Res 2019 http://www.jmir.org/2019/2/e12894/.

Jung YE, Min JA, Shin AY, Han SY, Lee KU, Kim TS, et al. The Korean version of the Connor-Davidson Resilience Scale: an extended validation. Stress Health 2012; 28: 319-326.

Jung Y-H, Ha TM, Oh CY, et al. The effects of an on-line mind-body training program on stress, coping strategies, emotional resilience and psychological state. PLOS One August 1, 2016. DOI:10.1371/journal.pone.0159841. ***[Means in tables are corrected – means in paper based on 1-5 scoring instead of 0-4]***.

Kane C, Tomotake M, Hamatani S, et al. Clinical factors influencing resilience in anorexia nervosa. Neuropsychiatr Dis Treat 2019; !5: 391-395.

Kang JI, Kim SJ, Song YY, Namkoong K, An SK. Genetic influence of COMT and BDNF gene polymorphisms on resilience in healthy college students. Neuropsychobiology 2013; 68: 174-180.

Kang X, Fang Y, Li S, et al. The benefits of indirect exposure to trauma: the relationships among vicarious posttraumatic growth, social support, and resilience in ambulance personnel in China. Psychiatry Investig 2018 Apr 27. Doi: 10.30773/pi.2017.11.08.1. [Epub ahead of print].

Karairmak O. Establishing the psychometric qualities of the Connor-Davidson Resilience Scale (CD-RISC) using exploratory and confirmatory factor analysis in a trauma survivor sample. Psychiatry Research 2010; 179: 350-356.

Kavirajan H, Vahia I, Thompson WK, Depp C, Allison M, Jeste DV. Attitude toward own aging and mental health in post-menopausal women. Asian J Psychiatry 2011; 4: 26-30.

Kaye-Kauderer HP, Levine J, Takegchi Y, et al. Post-traumatic growth and resilience among medical students after the March 2011 disaster in Fukushima, Japan. Psychiatric Q 2019 May 16 doi: 10.1007/s11126-019-09646-z. [Epub ahead of print]

Kermott CA, Johnson RE, Sood R, et al. Is higher resilience predictive of lower stress and better mental health among corporate executives? PLoS ONE 2019 Juun 11; 14(6): e0218092. Doi: 10.1371/journal.pone.0218092.

Keye MD, Pidgeon AM. An investigation of the relationship between resilience, mindfulness, and academic self-sufficiency. Open J Social Science 2015; 1: 6-14.

Khoshouei MS. Psychometric evaluation of the Connor-Davidson Resilience Scale (CD-RISC) using Iranian students. Int J Testing. 2009; 9: 60-66.

Kilic SA, Dorstyn DS, Gulver NG. Examining factors that contribute to the process of resilience following spinal cord injury. Spinal Cord 2013; 1-5. doi: 10.1038/sc.2013.25.

Kim H, Kim SA, Kong S. Resilience mediates impact of some childhood maltreatment on post-traumatic stress symptoms in conscripted Marines in the Republic of Korea. Research in Nursing and Health 2016 Dec 9. Doi: 10.1002/nur.21773 [Epub ahead of print].

Kim HK, Park HY, Seo E, et al. Factors associated with psychosocial functioning and outcome of individuals with recent-onset schizophrenia and at unltra-high risk for psychosis. Front Psychiatry 2019. Doi: 10.3389/fpsyt.2019.00459.

Kim HW, Kang JI, An SK, Kim SJ. Oxytocin receptor gene variants are associated with emotion recognition and resilience, but not with false-belief reasoning performance in healthy young Korean volunteers. CNS Neurosci & Therapeutics 2018. DOI: 10.1111/cns.13075.

Kim K, Park W. Effects of mobile navigation program in colorectal cancer patients based on uncertainty theory. J Korean Acad Nurs. 2019 Jun; 49(3): 274-284

Kim SY, Hou Y, Shen Y, Zhang M. Longitudinal measurement equivalence of Subjective Language Brokering Experiences Scale in Mexican American adolescents. Cultural Diversity and Ethnic Minority Psychology 2017. Doi.org/10.1037/cdp0000117. ***[NOTE: THIS REPORT USED AN UNAUTHORIZED 3-ITEM VERSION OF THE CD-RISC]***.

Kishore MT, Satyanarayana V, Ananthanpillai ST, et al. Life events and depressive symptoms among pregnant women in India: Moderating role of resilience and social support. Int J Social Psychiatry 2018; 64: 570-577.

Kjellstrand EK. An examination of resiliency factors and social support in middle- and upper-income single mothers. Dissertation, St. Mary's University, San Antonio, TX. May 2011.

Kjellstrand EK, Harper M. Yes, she can: an examination of resiliency factors in middle- and upper-income single mothers. J Divorce & Remarriage 2012; 53: 311-327.

Klasen F, Daniels J, Oettingen G, Post M, Hoyer C, Adam H. Posttraumatic resilience in former Ugandan child soldiers. Child Development 2010; 81: 1096-1113.

Klibert J, Rochani H, Samawi H, et al. The impact of an integrated gratitude intervention on positive affect and coping resources. Int J Applied Pos Psychol 2019. https://doi.org/10.1007/s41041-019-00015-6.

Knight A, Havard A, Shakeshaft A, Maple M, Snijder M, Shakeshaft B. The feasibility of embedding data collection into the routine service delivery of a multi-component program for high-risk people. Int J Environ Res and Public Hlth 2014, 14, 208; doi:10.3390/ijerph14020208.

Knows-His-Gun K, Bufford RK, Gathercoal K, Seegobin W. Resilience at St. Labre: Childhood adversity, spiritual well-being, employment, and resilience in a multi-ethnic rural population. Faculty publications – Graduate School of Clinical Psychology. Paper 4. 2013. http://digitalcommons.georgefox.edu/gscp_fac/4.

Koelmel E, Hughes AJ, Alschuler KN, Emde DM. Resilience mediates the longitudinal relationships between social support and mental health outcomes in multiple sclerosis. Arch Phys Med Rehabil 2016 Oct 24. Pii: S0003-0003(16)31165-0. Doi: 10.1016/j.apmr.2016.09.127. [Epub ahead of print].

Kohler S, Loh SM. Patient resilience in the fracture orthopaedic rehabilitation geriatric environment. Australas J Ageing 2016 Nov 20. doi: 10.1111/ajag.12363 [Epub ahead of print].

Kong l, Liu Y, Li G, et al. Resilience moderates the relationship between emotional intelligence and clinical communication ability among Chinese practice nursing students: A structural equation model analysis. Nurse Educ Today 2016; Aug 30; 46: 64-68. doi: 10.1016/j.nedt.2016.08.028 [Epub ahead of print].

Kong L. Fang M, Ma T, et al. Positive affect mediates the relationships between resilience, social support and posttraumatic growth of women with infertility. Psychol Health Med 2018 Mar 9: 1-10. Doi: 1080/13548506.2018.1447679. [Epub ahead of print].

Krähenmann O. Resilience in the aftermath of trauma – a pilot study. Int J Neuropsychopharmacology 2008 (Suppl 1); 11: 288. Poster 09. XXVI CINP Congress, Munich, July 13-17.

Kramer LB. Resilient individuals reform their assumptive worlds after stressful events. Dissertation thesis. April 2012. http://discoverarchive.vanderbilt.edu/handle/1803/5075. Accessed February 2, 2014.

Kreutzer JS, Marwitz JH, Sima AP, Bergquist TF, Johnson-Greene D, Felix ER, Whiteneck GG, Dreer LE. Resilience following traumatic brain injury: a traumatic brain injury model systems study. Archives Physical Medicine and Rehabilitation 2016. DOI: 10.1016/j.apmr.2015.12.003.

Kreutzer JS, Marwitz JH, Sima AP, et al. Efficacy of the resilience and adjustment intervention after traumatic brain injury: a randomized controlled trial. Brain Inj 2018; 32: 963-971.

Krystal AD, Zhang W, Davidson JRT, Connor KM. The sleep effects of tiagabine on the first night of treatment predict post-traumatic stress disorder response at three weeks. J Psychopharmacology 2014; 28: 457-465.

Kuiper H, van Leeuwen CCM, Stolwijk-Swüste JM, Post MWM. Measuring resilience with the Connor-Davidson Resilience Scale (CD-RISC): which version to choose? Spinal Cord 2019 Jan 22. Doi: 10.1038.s41393-0240-1. [Epub ahead of print]

Kukihara H, Yamawaki N, Uchiyama K, Arai S, Horikawa E. Trauma, depression, and resilience of earthquake/tsunami/nuclear disaster survivors of Hirono, Fukushima, Japan. Psychiatry and Clinical Neurosciences 2014; 68: 524-533.

Kwan YH, Ng A, Lim KK, et al. Validity and reliability of the ten-item Connor-Davidson Resilience Scale (CD-RISC-10) instrument in patients with axial spondyloarthritis (axSpA) in Singapore. Rheumatol International 2018. Doi.org/10.1007/s00296-018-4217-8.

Laff RE. Depression and resilience during the first six months of internship. A thesis submitted to the Yale University School of Medicine. 2008. Accessed at http://ymtdl.med.yale.edu/theses/available/etd-12082008-101904/.

Laird KT, Lavretsky H, St. Cyr, Siddarth P. Resilience predicts remission in antidepressant treatment of geriatric depression. Int J Geriatr Psychiatry 2018. DOI: 10.1002/gps.4953.

Laird KT, Lavretsky H, Paholpak P, et al. Clinical correlates of resilience factors in geriatric depression. Int Psychogeriatrics 2018; doi: 10.1017/S1041610217002873.

Laird KT, Lavretsky H, Wu P, et al. Neurocognitive correlates of resilience in late-life depression. Am J Geriatr Psychiatry 2019; 27: 12-17.

Laird V, Elliott TR, Brossart DF, et al. Trajectories of affective balance 1 year after traumatic injury: Associations with resilience, social support, and mild traumatic brain injury. J Happiness Studies 2018; https://doi.org/10.1007/s10902-018-0004-1.

Laliberté Durish C, Yeates KO, Brooks BL. Psychological resilience as a predictor of persistent post-concussive symptoms in children with single and multiple concussion. J Int Neuropsycol Soc 2018; 24: 759-768.

Laliberté Durish C, Yeates KO, Brooks BL. Convergent and divergent validity of the Connor-Davidson Resilience Scale in children with concussion and orthopaedic injury. Brain Injury 2018. https://doi.org/10.1080/02699052.2018.1502471.

Lambotte D, De Doner L, De Roeck EE, et al. Randomized controlled trial to evaluate a prevention program for frail community-dwelling older adults: a D-SCOPE protocol. BMC Geriatrics 2018; 18: 194. https://doi.org/10.1186/s12877-018-0875-3.

Lamond AJ, et al. Measurement and prediction of resilience among community-dwelling older women. Journal of Psychiatric Research, doi:10.1016/j.psychires.2008.03.007.

Langford DJ, Cooper B, Paul S, et al. Distinct stress profiles among oncology patients undergoing chemotherapy. J Pain Symptom Management 2019 pii: S0885-3924(19)30643-6. Doi: 10.1016/jpainsymman.2019.10.025. [Epub ahead of print].

Langhinrichsen-Rohling J, Selwyn CN, Jackson S, et al. The prevalence and mental and physical health correlates of posttraumatic stress disorder symptoms in vulnerable and underresourced primary care patients referred to a behavioral health provider. J Public Health Manag Pract 2017 Nov/Dec; 23 Suppl 6 Supplement, Gulf Region Health Outreach Program: S32-S39. Doi: 10.1097/PHH.0000000000000654.

Lau N, Bradford MC, Steineck A, et al. Exploratory analysis of treatment response trajectories in the PRISM trial: models of psychosocial care. Psychooncology 2019 Apr 30. doi: 10.1002/pon.5098. [Epub ahead of print]

Lauridsen LS, Willert MJ, Eskildsen A, Christiansen DH. Cross-cultural adaptation and validation of the Danish 10-item Connor-Davidson Resilience Sale among hospital staff. Scand J Public Health 2017; 45: 654-657.

Law J, Richmond RL, Kay-Lambkin F. The contribution of personality to longevity: Findings from the Australian Centenarian Study. Arch Gerontology and Geriatrics 2014, http://dx.doi.org/10.1016/j.archger.2014.06.007.

Lavretsky H, Siddarth P, Irwin MR. Improving depression and enhancing resilience in family dementia caregivers: a pilot randomized placebo-controlled trial of escitalopram. Am J Geriatr Psychiatry 2010; 18: 154-162.

Lavretsky H, Irwin MR. Complementary use of Tai Chi improves resilience, quality of life, and cognition in depressed older adults. Poster presented at 50th Anniversary Meeting, NCDEU, Boca Raton, FL. June 14-17, 2010. Accessed 1/1/11 at http://www.cmeinstitute.com/postersession/2010session1/ABSLavretsky.asp

Lavretsky H, Alstein LL, Olmstead RE, Ercoli LM, Riparetti-Brown M, St. Cyr N, Irwin MR. Complementary use of tai chi augments escitalopram treatment of geriatric depression: a randomized controlled trial. Am J Geriatr Psychiatry 2011; DOI: 10.1097/JGP.0b013e31820ee9ef.

Lee D, Cha B, Park C-S, et al. Effects of resilience on quality of life in patients with bipolar disorder. J Affective Disorders 2017; 207: 434-401.

Lee EE, Martin AS, Tu X, Palmer BW, Jeste DV. Childhood adversity and schizophrenia: the protective role of resilience in mental and physical health and metabolic markers. J Clin Psychiatry 2018 Apr 17; 79(3). Pii: 17m11776. Doi: 10.4088/JCP.17m11776. [Epub ahead of print].

Lee H, Williams RA. Effects of parental alcoholism, sense of belonging, and resilience on depressive symptoms: a path model. Substance Use Misuse. 2013; 48: 265-273.

Lee J, Blackmon BJ, Cochran DM, et al. Community resilience, psychological resilience, and depressive symptoms; An examination of the Mississippi Gulf Coast 10 years after Hurricane Katrina and 5 years after the Deepwater Horizon Oil Spill. Disaster Med Public Health Prep 2017 Aug 30: 1-8. doi:10.1017/dmp.2017.61 [Epub ahead of print].

Lee JH, Kim HY. Symptom distress and coping in young Korean breast cancer survivors: the mediating effects of social support and resilience. J Korean Acad Nurs 2018; 48: 241-253.

Lee J-K, Choi H-G, Kim J-Y, Nam J, Kang H-T, Koh S-B. Self-resilience as a protective factor against development of post-traumatic stress disorder symptoms in police officers. Ann Occup Environ Med 2016; 28.1 (Oct 17, 2016). DOI: http://dx.doi.org/10.1186/s40557-016-0145-9.

Lee JS, Ahn Y-S, Jeong K-S, Chae J-H, Choi K-S. Resilience buffers the impact of traumatic events on the development of PTSD symptoms in firefighters. J Affective Disorders 2014; http://dx.doi.org/10.1016/j.jad.2014.02.031.

Lee L-C, Connor KM, Davidson JRT. Eastern and western spiritual beliefs and violent trauma: a U.S. National Community Survey. Traumatology, 2008; 14: 68-76.

Lee S-J, Park C-S, Kim B-J, et al. Association between morningness and resilience in Korean college students. Chronobiology International 2016; dx.doi.org/10.1080/07420528.2016.1220387.

Lee Y, Lin P-Y, Lin M-C, et al. Morbidity and associated factors of depressive disorder in patients with lung cancer. Cancer Management and Research 2019; 11: 7587-7596.

Lee YR, Lee JY, Kim JM, et al. A comparative study of burnout, stress, and resilience among emotional workers. Psychiatry Investig 2019 Aug 29. Doi: 10.30773/pi.2019.07.10.

Lekan DA, Ward TD, Elliott AA. Resilience in baccalaureate nursing students. J Psychosocial Nursing Mental Health Services 2018; 56: 46-55.

Levasseur M, Roy M, Michallet B, et al. Associations between resilience, community belonging and social participation among community-dwelling older adults: Results from the Eastern Townships Population Health Survey. Arch Phys Med Rehabil 2017 Apr 24. Pii: S0003-9993(17)30259-9. Doi: 10.1016/j.apmr.2017.03.025. [Epub ahead of print].

Leventhal KS, Gillham J, DeMaria L, Andrew G, Peabody J, Leventhal S. Building psychosocial assets and wellbeing among adolescent girls: A randomized controlled trial. Journal of Adolescence 2015; 45: 284-295.

Lewis TL, Smith WJ, Bélanger F, Harrington KV. Determining students' intent to stay in IT programs: an empirical model. SIGMIS-CPR 2008; April 3-5, Charlottesville, VA. 5-11.

Li C, Lu H, Qin W, et al. Resilience and its predictors among Chinese liver cancer patients undergoing trans-arterial chemoembolization. Cancer Nursing 2018. DOI: 10.1097/NCC.0000000000000640.

Li G, Kong L, Zhou H, et al. Relationship between prenatal maternal stress and sleep quality in Chinese pregnant women: the mediation effect of resilience. Sleep Medicine 2016; 25: 8-12.

Li T, Liu T, Zhang M, Li Z, Zhu Q, Wang A. The relationship among resilience, rumination and posttraumatic growth in hemodialysis patients in North China. Psychol Health Med 2017 Oct 6: 1-12. doi: 10.1080/13548506.2017.1384.553 [Epub ahead of print].

Li Y, Cao F, Cao D, Wang Q, Cui N. Predictors of posttraumatic growth among parents of children undergoing inpatient corrective surgery for congenital disease. J Ped Surg 2012; 47: 2011-2021.

Li Y, Cao F, Cao D, Liu J. Nursing students’ post-traumatic growth, emotional intelligence and psychological resilience. J Psychiatr Mental Health Nurs 2014. Doi: 10.1111/jpm.12192.

Li Y, Wang K, Yin Y, Li Y, Li S. Relationships between family resilience, breast cancer survivors’ individual resilience, and caregiver burden: A cross-sectional study. Int J Nursing Studies 2018; 88: 79-84.

Li Y, Zhang X, Shi M, Gou S, Wang L. Resilience acts as a moderator in the relationship between infertility-related stress and fertility quality of life among women with infertility. Health Qual Life Outcomes 2019 Feb 15: 17(1(: 38. Doi: 10.1186/s12955-019-1099-8.

Li Y, Gu S, Wang Z, et al. Relationship between stressful life events and sleep quality: Rumination as a mediator and resilience as a moderator. Front Psychiatry 2019 May 27; 10: 348. Doi: 10.3389/fpsyt.2019.00348.

Li Y, Bai H, Lou F, Cao F. A conceptual model of posttraumatic growth of nursing students with a disabled parent. Int J Nurs Sci 2019; 5: 406-413.

Lim HA, Tan JY, Liu J, Chua J, Ang EN, Kua EH, Mahendran R. Strengthening resilience and reducing stress in psychosocial care for nurses practicing in oncology settings. J Contin Educ Nursing 2016 Jan 1; 47(1): 8-20. DOI: 10.3928/00220124-20151230-03.

Lim KK, Matchar DB, Tan CS, et al. The association between psychological resilience and physical function among older adults with hip fracture surgery. J Am Med Dir Assoc 2019 Sep 12. Pii: S1525-8610(19)30528-6. Doi: 10.1016/jamda.2019.07.005.

Lim M-L, Broekman BFP, Wong JCM, Wong S-T, Ng T-P. The development and validation of the Singapore Youth Resilience Scale (SYRESS). Int J Educ and Psychol Assessment 2011; 8: 16-29.

Lim ML, Lim D, Gwee X, Nyunt MS, Kumar R, Ng TP. Resilience, stressful life events, and depressive symptomatology among older Chinese adults. Aging Ment Health 2015; Jan 6: 1-10.

Linz S, Helmreich I, Kunzler A, et al. Interventions to promote resilience in adults. Psychother Psych Med 2019 https://doi.org/10.1055/a-0830-4745. ***Review in German.***

Liu DWY, Fairweather-Schmidt AK, Roberts RM, Burns R, Anstey KJ. Does resilience predict suicidality? A lifespan analysis. Arch Suic Res 2014; 18: 453-464.

Liu DWY, Fairweather-Schmidt AK, Burns R, Roberts RM. The Connor-Davidson Resilience Scale: establishing invariance between gender across the lifespan in a large community-based cohort. J Psychopathology and Behav Assessment 2015; 109. Doi:10.1007/s10862-014-9452-z. ***(Report scored scale from 25-125; corrected scores have been used in this manual).***

Liu X, Liu C, Tian X, Zou G, Li G, Kong L, Li P. Associations of perceived stress, resilience and social support with sleep disturbance among community-dwelling adults. Stress and Health 2015. Published online in Wiley Online Library DOI: 10.1002/smi.2664.

Liu Z, Zhou X, Zhang W, Zhou L. Resilience and its correlates among first ischemic stroke survivors at acute stage hospitalization from a tertiary hospital in China: a cross-sectional study. Aging & Mental Health 2018 http://doi.org/10.1080/13607863.2018.1550630.

Liu Z, Zhou X, Zhang W, Zhou L. Factors associated with quality of life early after ischemic stroke: the role of resilience. Top Stroke Rehabil 2019 Apr 8: 1-7. Doi: 10.1080/10749357.2019.1600285. [Epub ahead of print].

Livingston LA, Forbes SL. Factors contributing to the retention of Canadian amateur sports officials: Motivations, perceived organizational support, and resilience. Int J Sports Science & Coaching 2016; 11: 342-355.

Livingston LA, Forbes SL. Resilience, motivations for participation, and perceived organizational support amongst athletic sports officials. J Sports Behaviour 2017; 40: 43-67.

Loh JMI, Klug J. Voices of migrant women: the mediating role of resilience on the relationship between acculturation and psychological distress. The Australian Community Psychologist 2012; 24: 59-78.

Lopes VR, Martins MCF. Validação factorial da escala de resiliência de Connor-Davidson (CD-RISC-10) para Brasilieiros. Revista Psicologia: Organizações e Trabalto 2011; 11: 36-50.

Loprinzi CE, Prasad K, Schroeder DS, Sood A. Stress management and resilience training (SMART) program to decrease stress and enhance resilience among breast cancer survivors: a pilot randomized clinical trial. Clin Breast Cancer 2011; 11: 364-368, and Epub August 11.

Lu C, Yuan L, Lin W, Zhou Y, Pan S. Depression and resilience mediates the effect of family function on quality of life of the elderly. Arch Gerontol Geriatr 2017; 71: 34-42.

Lu FJH, Lee WP, Chang Y-K, Chou C-C, Hsu Y-W. Interaction of athletes' resilience and coaches' social support on the stress-burnout relationship: A conjunctive moderation perspective. Psychology of Sport and Exercise 2016; 22: 202-209.

Lu PL, Blom PJJ, Qian Q, et al. Colombian school children with functional gastrointestinal disorders respond differently to family stress than healthy children. J Pediatr Gastroenterol Nutr 2019 Apr; 68(4): e58-61.doi: 10.1097/MPG.0000000000002219.

Lü W, Wang Z, You X. Physiological responses to repeated stress in individuals with high and low trait resilience. Biological Psychology 2016; 120: 46-52.

Lukow HR, Godwin EE, Marwitz JH, Mills A, Hsu NH, Kreutzer JS. Relationship between resilience, adjustment, and psychological functioning after traumatic brain injury: a preliminary report. J Head Trauma Rehabil 2015 Apr 29 [Epub ahead of print].

Luo RZ, Zhang S, Liu YH. Short report: relationships among resilience, social support, coping style and posttraumatic growth in hematopoietic stem cell transplantation caregivers. Psychol Health Med 2019 Sep 13: 1-7. DOI: 10.1080/13548506.2019. 1659985.

Luo T, Cheng X, Xiong Y. Relationship among resilience, coping style and mental health of newly recruited workers born after 1990 in manufacturing industry of Shenzhen City. Wei Sheng Yan Jiu 2015; 44: 252-256.

Lutz LL, Gaffney-Stromberg E, Williams KW, et al. Adherence to the dietary guidelines for Americans is associated with psychological resilience in young adults: A cross-sectional study. J Acad Nutrition and Dietetics 2016. http://dx.doi.org/10.1016/j.jand.2016.09.018.

Lyons A, Heywood W, Rozbroj T. Psychosocial factors associated with resilience in a national community-based cohort of Australian gay men living with HIV. AIDS Behav 2016. DOI: 10.1007/s10461-016-1338-5.

Madewell AN, Ponce-Garcia E. Assessing resilince in emerging adulthood: The Resilience Scale (RS), Connor-Davidson Resilience Scale (CD-RISC), and Scale of Protective Factors (SPF). Personality and Individual Differences 2016; 97: 247-255.

Madewell AN, Ponce-Garcia E, Martin SE. Data replicating the factor structure and reliability of commonly used measures of resilience: The Connor-Davidson Resilience Scale, Resilience Scale, and Scale of Protective Factors. Data in Brief 2016; 8: 1387-1390.

Maguen S, et al. Description of risk and resilience factors among military medical personnel before deployment to Iraq. Military Medicine 2008; 173: 1-9.

Mak KK, Jeong J, Lee H-K, Lee K. Mediating effect of internet addiction on the association between resilience and depression among Korean university students: A structural equation modeling approach. Psychiatry Investigation 2018; 15: 962-969.

Mak WW, Ng IS, Wong CC, Law RW. Resilience style questionnaire: development and validation among college students and cardiac patients in Hong Kong. Assessment 2017 DOI: 10.1177/1073191116683798 [Epub ahead of print].

Makhnach A. Theoretical basis of the assessment methods of professional resilience. Russian Academy of Sciences. (In Russian – abstract in English) http://work-org-psychology.ru/engine/documents/document226.pdf.

Malan S, Hemmings S, Kidd M, Martin L, Seedat S. Investigation of telomere length and psychological stress in rape victims. Depression and Anxiety 2011; 28: 1081-1085.

Maltby J, Day L, Flowe HD, Vostanis P, Chivers S. Psychological trait resilience within ecological systems theory: the Resilient Systems Scales. J Personality Assessment 2017. https://doi.org/10.1080/00223891.2017.1344985.

Mansfield AJ, Bender RH, Hourani LL, Larson GE. Suicidal or self-harming ideation in military personnel transitioning to civilian life. Suicide and Life-Threatening Behavior 2011; 41: 392-402.

Manzano-Garcia G. See Garcia GM.

Markovitz S, Peters ML, Schrooten W, Schouten E. Psychometrische evaluatie van de CD-RISC in een Nederlandstalige populatie: een multi of unifactorieel meetinstrument om veerracht te meten? Tijdschrift Klinische Psychologie 2014; 44(1): 55-68.

Markovitz S, Schrooten W, Arntz A, Peters ML. Resilience as a predictor for emotional response to the diagnosis and surgery in breast cancer patients. Psychooncology 2015 May 12. DOI: 10.1002/pon.3834.

Marriott BP, Turner TH, Hibbeln J, et al. Design and methods for the Ranger Resilience and Improved Performance on phospholipid bound Omega-3's (RRIPP-3 study). Contemp Clin Trials Communications 2019 https://doi.org/10-1016/j.conete.2019.100359.

Marselle MR, Warber SL, Irvine KM. Growing resilience through interaction with nature: Can group walks in nature buffer the effects of stressful life events on mental health? Int J Environ Res Publ Hlth 2019, 16, 986; doi: 10.3390/ijerph16060986.

Martin C, Hinkley N, Stockman K, Campbell D. Resilience, health perceptions, (QOL), stressors, and hospital admissions – Observations from the real world of clinical care of unstable health journeys in Monash Watch (MW), Victoria, Australia. J Evaluation Clin Practice 2018. DOI: 10.1111/jep.13031.

Marulanda S, Addington J. Resilience in individuals at clinical high risk for psychosis. Early Intervention in Psychiatry 2014; 1-8. Doi:10.1111/eip.12174.

Marwitz JH, Sima AP. Kreutzer JS, et al. Longitudinal examination of resilience after traumatic brain injury: a traumatic brain injury model systems study. Arch Phys Med Rehabil 2017 Jul 19. Pii: S0003-9993(17)30469-0. Doi: 10.1016/j.apmr.2017.06.013 [Epub ahead of print].

Marx M, Young SY, Harvey J, Rosenstein D, Seedat S. An examination of differences in psychological resilience between social anxiety disorder and posttraumatic stress disorder in the context of early childhood trauma. Front Psychol 2017 Dec 11; 8: 2058. Doi: 10.3389/fpsycg.2017.02058. eCollection 2017.

Mascolini M. Less resilience in older people with vs. without HIV tied to drops in daily-living activities. Presntation at 3rd International Workshop on HIV and Aging. Baltimore, MD. November 5-6, 2012. Accessed at: www.natap.org/2012/AGE/AGE_02.htm.

Mathad MD, Pradhan B, Rajesh SK. Correlates and predictors of resilience among baccalaureate nursing students. J Clin Diagn Res 2017; 11: JC05-JC08.

Mathad MD, Pradhan B, Sasidharan RK. Effect of yoga on psychological functioning of nursing students: A randomized wait list control trial. J Clin Diagn Res 2017 May; 11(5):KC01-KC05. doi: 10.7860/JCDR/2017/26517.9833 [Epub ahead of print].

Matzka M, Mayer H, Kock-Hodi S, Moses-Passini C, Dubey C, Jahn P, Schneeweiss S, Eicher M. Relationship between resilience, psychological distress and physical activity in cancer patients: A cross-sectional observation study. PLoS ONE 2016 April 28 doi: 10.1371/journal.pone.0154496.

Matsuoka Y, Nishi D, Yonimoto N, Hamazaki K, Matsumura K, Noguchi H, Hasimoto K, Hamazaki T. Tachikawa project for prevention of posttraumatic stress disorder with polyunsaturated fatty acid (TPOP): study protocol for a randomized controlled trial. BMC Psychiatry 2013; 13: 8. Doi:10.1186/1471-244X-13-8.

Mayo Clinic. Resilience: Build Skills to Endure Hardship. (Selected and modified parts of the scale reproduced with permission of Drs. Davidson and Connor). http://mayoclinic.com/print/resilience/MH00078.

McCanlies EC, Mnatsakanova A, Andrew ME, Burchfield CM. Positive psychological factors are associated with lower PTSD symptoms among police officers: post Hurricane Katrina. Stress and Health 2014; 30: 405-415.

McCanlies EC, Gu JK, Andrew ME, Burchfiel CM, Violanti JM. Resilience mediates the relationship between social support and post-traumatic stress symptoms in police officers. J Emerg Manag 2017 Mar/Apr: 15(2): 107-116.

McCauley SR, Wilde EA, Miller ER, Frisby ML, Garza HM, Verghese R, Levin HS, Robertson CS, McCarthy JJ. Preinjury resilience and mood as predictors of early outcome following mild traumatic brain injury. J Neurotrauma, doi: 10.1089/neu.2012.2393.

McFarland DC, Roth AC. Resilience of internal medicine house staff and its association with distress and empathy in an oncology setting. Psychooncology 2016 May 24. doi: 10.1002/pon.4165 [Epub ahead of print].

McGillivray K, Ho R. Validation of the Connor-Davidson Resilience Scale (CD-RISC) as applied within the Thai context. Assumption University. The Scholar (Graduate Journal of Assumption University of Thailand) 2016; 8(2): 178-817. Doctoral thesis accessed at http://repository.au.edu/handle/6623004553/17539.

McGlone J, Gillespie J, Lee K, Pohlmann-Eden B, Sadler RM. Measuring perceived stigma in literate adults with epilepsy: where does resilience fit? Poster presented at 63rd Annual Meeting, American Epilepsy Society, Boston, MA. October 4-8, 2009.

McKillop AB, Carroll LJ, Dick BD, Battié MC. Measuring participation in patients with chronic low back pain – the 5-item Pain Disability Index. Spine J 2017 jul 20. Doi: 10.1016/j.spinee.2017.07.172 [Epub ahead of print].

McLain TC. Refining a measure of appraisal style. Honors thesis. Vanderbilt University. April 5, 2012. Accessed at http://discoverarchive.vanderbilt.edu/handle/1803/5305.

McNally RJ, Hatch JP, Cedillos EM, Luethcke CA, Baker MT, Peterson AL, Litz BT. Does the repressor coping style predict lower posttraumatic stress symptoms? Military Medicine, 2011; 176: 752-756.

McTighe JP. Narrative, meaning, and resilience: towards a deeper understanding of social workers' experience of September 11, 2001. Thesis, September 2009, accessed at gradworks.umi.com/33/67/3367080.html, and http://gateway.proquest.com/openurl%3furl_ver=Z39.88-2004%2bres_dat=xri:pqdiss%26rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation%26rft_dat=xri:pqdiss:3367080.

Mealer M, Jones J, Newman J, McFann KK, Rothbaum BO, Moss M. The presence of resilience is associated with a healthier psychological profile in intensive care unit (ICU) nurses: results of a national survey. Int J Nursing Studies 2012; 49: 292-299.

Mealer M, Jones J, Moss M. A qualitative study of resilience and posttraumatic stress disorder in United States ICU nurses. Intensive Care Medicine 2012; 38: 1445-1451.

Mealer M, Schmiege SJ, Meek P. The Connor-Davidson Resilience Scale in critical care nurses: a psychometric analysis. J Nursing Measurement 2016; 24: 28-39. ***(Note: the scale presented in this paper is a modified 16-item measure that is not authorized for dissemination or use).***

Mehta D, Bruenig D, Lawford B, et al. Accelerated DNA methylation aging and increased resilience in veterans: The biological cost for soldiering on. Neurobiol Stress 2018. Doi.org/10.1016/j.ynstr.2018.04.001.

Mehta D, Pelzer E, Bruenig D, et al. DNA methylation from germline cells in veterans with PTSD. J Psychiatric Res 2019; 116: 42-50.

Melvin KC, Gross D, Hayat MJ, Jennings BM, Campbell JC. Couple functioning and post-traumatic stress symptoms in US army couples: the role of resilience. Res Nursing & Health 2012; 35: 164-177.

Menezes de Lucena Carvalho VA, et al. Resilience and the burnout-engagement model in formal caregivers of the elderly. Psicothemia, 2006; 18: 791-796.

Meng M, He J, Guan Y, et al. Factorial invariance of the 10-item Connor-Davidson Resilience Scale across gender among Chinese elders. Front Psychol 2019 May 31: 10: 1237. Doi: 10.3369/fpsyg.2019.01237.

Metel D, Arciszewska A, Daren A, et al. Resilience and cognitive biases mediate the relationship between early exposure to traumatic life events and depressive symptoms in young adults. J Affect Disord. 2019 May 5;254:26-33. doi: 10.1016/j.jad.2019.05.008. [Epub ahead of print].

Metel D, Arciszewska A, Daren A, et al. Mediating role of cognitive biases, resilience and depressive symptoms in the relationship between childhood trauma and psychotic-like experiences in young adults. Early Intervent Psychiatry 2019 May 15 doi: 10.1111/eip.12829.

Min J-A, Lee N-B, Lee C-U, Lee C, Chae J-H. Low trait anxiety, high resilience, and their possible interaction as predictors for treatment response in patients with depression. J Affective Disorders 2012; 137: 61-69.

Min J-A, Jung Y-F, Kim D-J, Yim H-W, Kim J-J, Kim T-S, Lee C-U, Lee C, Chae J-H. Characteristics associated with low resilience in patients with depression and/or anxiety disorders. Qual Life Res 2012, April 7. DOI 10.1007/s11136-012-0153-3.

Min J-A, Yoon S, Lee C-U, Chae J-H, Lee C, Song K-Y, Kim T-S. Psychological resilience contributes to low emotional distress in cancer patients. Support Care Cancer 2013. doi 10:1007/s00520-013-1807-6.

Min J-A, Yu JJ, Lee C-U, Chae J-H. Cognitive emotion regulation strategies contributing to resilience in patients with depression and/or anxiety disorders. Comprehensive Psychiatry 2013; 54: 1190-1197.

Mitchell SJ, Ronzio CR. Violence and other stressful life events as triggers of depression and anxiety: what psychosocial resources protect African-American mothers? Matern Child Health J 2010; DOI 10.1007/s10995-010-0668-6.

Moffett JE, Bartram DJ. Veterinary students' perspectives on resilience-building strategies. J Vet Med Education 2017 Spring: 44 (1): 116-124. Doi: 10.3138/jvme.0216-046R1.

Monrad SU, Bibler Zaidi NL, Gruppen LD, et al. Does reducing clerkship lengths by 25% affect medical student performance and perceptions? Academic Medicine 2018. DOI: 10.1097/ACM.0000000000002367.

Montero-Marin J, Demarzo MMP, Pereira JP, Olea M, Garcia-Campayo J. Reassessment of the psychometric characteristics and factor structure of the 'Perceived Stress Questionnaire' (PSQ): analysis in a sample of dental students. PLOS ONE 2014; 9(1): 1-9 (e87071).

Montero-Marin J, Tops M, Manzanera R, Piva Demarzo MM, de Mon MA, Garcia-Campayo J. Mindfulness, resilience, and burnout subtypes in primary care physicians: the possible mediating role of positive and negative affect. Frontiers in Psychology 2015. DOI: 10.3389/fpsyg.2015.01895.

Montross LP, et al. Correlates of self-rated successful aging among community-dwelling older adults. Am J Geriatr Psychiatry, 2006; 14: 43-57.

Morey R, et al. Neural systems for executive and emotional processing are modulated by symptoms of posttraumatic stress disorder in Iraq War veterans. Psychiatry Research 2008; 162: 59-72.

Morey RA, Dolcos F, Petty CM, Cooper DA, Hayes JP, LaBar KS, McCarthy G. The role of trauma-related distracters on neural systems for working memory and emotion processing in posttraumatic stress disorder. J Psychiatric Res 2009; 43: 809-817.

Morice-Ramat A, Goronflot L Guihard G. Are alexithymia and empathy predicting factors of medical residents in France? Int J Med Educ 2018; 30: 122-128. ***[NOTE: Only 21 of the 25 items were used, making interpretation difficult].***

Muench J, Levy S, Rdesinski R, et al. Personal characteristics associated with the effect of childhood trauma on health. Int J Psychiatry Med 2018. DOI: 10.1177/0091217418791458.

Munevar FR, Vargas LB, Borda DB, Alpi SV, Quiceno JM. Validez de constructo y confiabilidad del Connor-Davidson Resilience Scale (CD-RISC 10) en poblacio Colombiana con enfermedades cronicas. Salud & Societad 2016; 7: 130-137.

Nam CR, Lee DH, Lee JY, et al. The role of resilience in internet addiction among adolescents between sexes: A moderated mediation model. J Clin Medicine 2018; doi: 10.3390/jcm 7080222.

Nathan S, Bunde-Biroustie A, Evers C, Kemp L, McKenzie J, Henley R. Social cohesion through football: quasi-experimental mixed methods design to evaluate a complex health promotion program. BMC Public Health 2010; 10: 587.

Naylor JC, Dolber TR, Strauss JL, Kilts JD, Strauman TJ, Bradford DW, Szabo ST, Youseff NA, Connor KM, Davidson JRT, Marx CE. A pilot randomized controlled trial with paroxetine for subthreshold PTSD in Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF) era veterans. Psychiatry Research 2012, http://dx.doi.org/10.1016/j.psychres.2012.11.008.

Naz S, Gavin H. Correlates of resilience in police officers in England and Pakistan: a cross-national study. Pakistan J Criminol 2013; 5: 215-234.

New AS, Fan J, Murrough JW, Liu X, Liebman RE, Guise KG, Tang CY, Charney DS. A functional magnetic resonance imaging study of deliberate emotion regulation in resilience and posttraumatic stress disorder. Biol Psychiatry 2009; 66: 656-664.

Nezhad MAS, Besharat MA. Relations of resilience and hardiness with sport achievement and mental health in a sample of athletes. Procedia Social and Behavioral Sciences, 2010: 5: 757-763.

Ni C, Chow MCM, Jiang X, Li S, Pang SMC. Factors associated with resilience of adult survivors five years after the 2008 Sichuan earthquake in China. PLOS ONE. March 26, 2015. DOI:10.1371/journal.pone. 0121033.

Ni MY, Li TK, Yu NX, Pang H, Chan BHY, Leung GM, Stewart SM. Normative data and psychometric properties of the Connor-Davidson Resilience Scale and the abbreviated version (CD-RISC-2) among the general population in Hong Kong. Quality of Life Research 2015. DOI 10.1007/s11136-015-1072, and personal communication 12/15/2016.

Nicholls PJ, Abraham K, Connor KM, Ross J, Davidson JRT. Trauma and posttraumatic stress in users of the Anxiety Disorders Association of America website. Compr Psychiatry, 2006; 47: 30-34.

Nie C, Dai Q, Zhao R, Don Y, Chen Y, Ren H. The impact of resilience on psychological outcomes in women with threatened premature labor and spouses: a cross-sectional study in Southwest China. Health Qual Life Outcomes 2017 Jan 31;15(1):26. doi: 10.1186/s12955-017-0603-2.

Noda Y, Asano K, Shimizu E, Hirano Y. Assessing subgroup differences in posttraumatic stress disorder among rescue workers in Japan with the Impact of Event Scale-Revised. Disaster Med Public Health Prep 2018. DOI: 10.1017/dmp.2018.62.

Noghan N, Akaberi A, Pournamdarian S, et al. Resilience and therapeutic regimen compliance in patients undergoing hemodialysis in hospitals of Hamedan, Iran. Electronic Physician 2018; 10: 6853-6858.

Notario-Pacheco B, Solera-Martinez M, Serrano-Parra MD, Bartolomé-Gutiérrez R, Garcia-Campayo J, Martinez-Vizcaino V. Reliability and validity of the Spanish version of the 10-item Connor-Davidson Resilience Scale (10-item CD-RISC) in young adults. Health and Quality of Life Outcomes 2011; 9: 63 accessed at http://www.hqlo.com/content/9/1/63.

Notario-Pacheco B, Martinez-Vizcaino V, Trillo-Calvo E, Perez-Yus MC, Serrano-Parra D, Garcia-Campayo J. Validity and reliability of the Spanish version of the 10-item CD-RISC in patients with fibromyalgia. Health and Quality of Life Outcomes 2014; 12: 14. Doi:10.1.1186/1477-7525-12-14.

Nrugham L, Holen A, Sund AM. Associations between attempted suicide, violent life events, depressive symptoms, and resilience in adolescents and young adults. J Nerv Ment Dis 2010; 198: 131-136.

Nugent NR, Koenen K, Bradley B. Heterogeneity of posttraumatic stress symptoms in a highly traumatized low income, urban, African American sample. J Psychiatric Research 2012; 46: 1576-1583.

Obbarius N, Fischer F, Obbarius A, et al. A 67-item Stress Resilience item bank showing high content validity was developed in a psychosomatic sample. J Clin Epidemiology 2018 Apr 10. Pii: S0895-4356(17)30561-9. Doi: 10.1016/j.clinepi.2018.04.004.

Oblea PN Jr., Badger TA, Hopkins-Chadwick DL. Effect of short-term separation on the behavioral health of military wives. J Psychosocial Nursing Mental Health Services 2016 Jun 1; 54(6): 45-51. doi: 10.3928/02793695-20160518-07.

O'Hanlon K, Camic P, Shearer J. Factors associated with parental adaptation to having a child with a cleft lip and/or palate: the impact of parental diagnosis. Cleft Palate Craniofacial J 2012; 49: 718-729.

O'Hara R, Marcus P, Thompson WK, Flournoy J, Vahia I, Lin X, Hallamyer J, Depp C, Jeste DV. 5-HTTLPR short allele, resilience and successful agiing in older adults. American Journal of Geriatric Psychiatry 2012: Jan 9; Epub ahead of print.

Okun MA, Rios R, Crawford AV, Levy R. Does the relation between volunteering and well-being vary with health and age? Int J Aging and Human Development 2011; 72: 265-282. ***(Note: An unvalidated 6 item version of the scale was used in this study).***

Okuyama M, Honda N, Funakosi S. Factors associated with the psychological impact of the Great East Japan Earthquake on high school students 1 year and 4 months after the disaster. Seishin Shinkeigaku Zasshi. 2014.

Ong HL, Vaingankar JA, Abdin E, et al. Resilience and burden in caregivers of older adults: moderating and mediating effects of perceived social support. BMC Psychiatry 2018 Jan 31; 18(1): 27. Doi: 10.1186/s12888-018-1616-z.

Orosz G, Toth-Kiraly I, Buki N, et al. The four faces of competition: The development of the Multidimensional Competitive Orientation Inventory. Front Psychology May 2018 doi: 10.3389/fpsyg.2018.00779. ***[Authors used 1-5 scoring range: scores in manual adjusted to 0-4 range].***

Osofsky HJ, Osofsky JD, Hansel TC. Deepwater Horizon Oil Spill: mental health effects on residents in heavily affected areas. Disaster Medicine and Public Health Preparedness 2011; 5: 280-286. ***[Note: The scale as scored 1-5 in the paper. The corrected mean is given in the text of this manual].***

Osofsky HJ, Weems CF, Graham RA, et al. Perceptions of resilience and physical health symptoms improvement following post disaster integrated health services. Disaster Med Public Hlth Preparedness 2018; DOI: 10.1017/dmp.2018.35.

Ota M, Nemoto K, Ishida I, et al. Structural brain network correlated with the resilience to traumatic events in the healthy participants: An MRI study on healthy people in a stricken area of the Great East Japan Earthquake. Psychol Trauma 2019 Oct 17: DOI: 10.1037/tra0000517 [Epub ahead of print].

Otto LM, Howerter A, Bell IR, Jackson N. Exploring measures of whole person wellness: integrative well-being and psychological flourishing. Explore 2010; 6: 364-370.

Okuyama J, Funakoshi S, Tomita H, et al. Longitudinal characteristics of resilience among adolescents: A high school student cohort study to assess the psychological impact of the Great East Japan Earthquake. Psychiatry and Clin Neurosciences 2018 DOI: 10.1111/pcn.12772.

Paban V, Modolo J, Mheich A, Hassan M. Psychological resilience correlates with EEG source-space brain network flexibility. Netw Neurosci 2019; 3: 5390550.

Padilla-Ruiz M, Ruiz-Roman C, Perez-Ruiz E, et al. Clinical and sociodemographic factors that may influence the resilience of women surviving breast cancer: cross-sectional study. Support Care Cancer 2019; 27: 1279-1286.

Pakdaman S, Saadat SH, Shahyad S, Ahmadi K, Hosseinialhashemi M. The role of attachment styles and resilience on loneliness. Int J Med Res & Helath Sciences 2016; 5: 268-274.

Pangallo A, Zibarras L, Lewis R, Flaxman P. Resilience through the lens of interactionism: A systematic review. Psychological Assessment 2014. http://dx.doi.org/10.1037/pas0000024.

Papini S, Pisner D, Shumake J, et al. Ensemble machine-learning prediction of posttraumatic stress disorder after emergency room hospitalization. J Anxiety Disorders 2018 October. DOI: 101016/j.janxdis.2018.10.004.

Park EJ, Kim KE, Baek HS, Yu JC, Choi KS. The effect of positive psychological characteristics on post-traumatic stress symptoms after traumatic experiences in firefighters. J Korean Neuropsychiatric Association 2010; 49: 645-652.

Park HY, Bang M, Kim KR, Lee E, An SK. Fragile self and malevolent others: Biased attribution styles in individuals at ultra-high risk for psychosis. Psychiatry Investigation 2018; 15: 795-804.

Park SH, Naliboff BD, Shih W, et al. Resilience is decreased in irritable bowel syndrome and associated with symptoms and cortisol response. Neurogasterenterol Mtil 2017 Jul 18. doi: 10.1111/nmo.13155 [Epub ahead of print].

Parkin Kullmann JA, Hayes S, Pamphlett R. Is psychological stress a predisposing factor for amyotrophic lateral sclerosis (ALS)? An online international case-control study of premorbid life events, occupational stress, resilience and anxiety. PLOS ONE 2018. Doi.org/10.1371/journal.pone.0204424.

Paulus MP, Simmons AN, Potterat EG, van Orden K, Swain JL. Systems neuroscience approaches to measure brain mechanisms underlying resilience – towards optimizing performance. In: Neurocognitive and Physiological Factors During High-Tempo Operations. Eds: S. Kornguth, R. Steinberg and MD Matthews. Ashgate, 2010: 133-145.

Paulus MP, Flagan T, Simmons AN, Gillis K, Kotturi S, Thom N, Johnson DC, Van Orden KF, Davenport PW, Swain JL. Subjecting elite athletes to inspiratory breathing and neural signatures of optimal performers in extreme environments. PLoS ONE 2012; 7:1-11. e29394.

Payne VM, Naylor JC, Hamer RM, Kilts JD, Strauss JL, Keefe RFS, Connor KM, Davidson JRT, Marx CE. Novel neurosteroid interventions: pilot randomized controlled trial of adjunctive pregnenolone in posttraumatic stress disorder. Unpublished data. *(Poster presentation at 47th Annual Meeting, American College of Neuropsychopharmacology. Scottsdale, AZ. December 7-11, 2008).*

Peng L, Zhang J, Li M, Zhang Y, Zuo X, Miao Y, Xu Y. Negative life events and mental health of Chinese medical students: the effect of resilience, personality and social support. Psychiatry Res 2012; doi:10.1016/j.psychres.2011.12.006.

Peng L, Zhang J, Chen H, Zhang Y, Li M, Yu Y, Liu B. Comparison among different versions of Connor-Davidson Resilience scale (CD-RISC) in rehabilitation patients after unintentional injury. J Psychiatry 2014; 17: 6. http://dx.doi.org/10.4172/Psychiatry.1000153.

Peng L, Li M, Zuo X, Miao Y, Chen L, Yu Y, Liu B, Wang T. Application of the Pennsylvania resilience training program on medical students. Personality and Individual Differences 2014; 61-62: 47-51

Peng L, Cao HW, Yu Y, Li M. Resilience and cognitive bias in Chinese male medical freshmen. Front Psychiatry 2017 Aug 30;8:158. doi: 10.3389/fpsyt.2017.00158.

Pepe J. The relationship of principal resiliency to job satisfaction and work commitment: an exploratory study of K-12 public school principals in Florida. Dissertation for the degree of Doctor of Education, University of South Florida. ProQuest LLC. 789 East Eisenhower Parkway. PO Box 1346, Ann Arbor, MI 48106-1346. 2011.

Perera HN, Ganguly R. Construct validity of scores from the Connor-Davidson Resilience Scale in a sample of postsecondary students with disabilities. Assessment 2016; DOI 10.1177/1073191116646444.

Perron JL, Cleverly K, Kidd SA. Resilience, loneliness, and psychological distress among homeless youth. Arch Psychiatr Nursing 2014; 28: 226-229.

Petros N, Opacka-Jouffry J, Huber JH. Psychometric and neurobiological assessment of resilience in a non-clinical sample of adults. Psychoneuroendocrinology 2013; 38: 2099-2108.

Phillips EL. Resilience, mental flexibility, and cortisol response to the Montreal Imaging Stress Task in unemployed men. Dissertation, University of Michigan. 2011. Accessed at http://141.213.232.243/bitstream/handle/2027.42/84486/elphilli_1.pdf?sequence=1.

Pidgeon AM, Keye M. Relationship between resilience, mindfulness, and psychological well-being in university students. Int J Liberal Arts and Social Science 2014 June; 2.

Pietrzak RH, Johnson DC, Goldstein MB, Malley JC, Southwick SM. Psychological resilience and post-deployment social support protect against traumatic stress and depressive symptoms in soldiers returning from Operations Enduring Freedom and Iraqi Freedom. Depression and Anxiety, 2009a; 26: 745-751. ***Also see Editorial Comment: Myatt CA, in J Spec Oper Med 2009 Summer; 9(3): 79***.

Pietrzak RH, Goldstein MB, Malley JC, Rivers AJ, Johnson DC, Southwick SM. Risk and protective factors associated with suicidal ideation in veterans of Operation Enduring Freedom and Iraqi Freedom. J Affective Disorders 2009b, October 9. Epub ahead of print, doi:10.1016/j.jad.2009.08.001.

Pietrzak RH, Johnson DC, Goldstein MB, Malley JC, Southwick SM. Perceived stigma and barriers to mental health care utilization among OEF-OIF veterans. Psychiatric Services 2009c; 60: 1118-1122.

Pietrzak RH, Johnson DC, Goldstein MB, Malley JC, Rivers AJ, Morgan CA, Southwick SM. Psychosocial buffers of traumatic stress, depressive symptoms, and psychosocial difficulties in veterans of Operation Enduring Freedom and Iraqi Freedom: the role of resilience, unit support, and post-deployment social support. J Affective Disorders 2010; 120 (1-3): 188-192, epub. ***Also see Editorial Comment: Myatt CA, in J Spec Oper Med 2009 Summer; 9(3): 80.***

Pietrzak RH, Russo AR, Ling Q, Southwick SM. Suicidal ideation in treatment-seeking Veterans of Operations Enduring Freedom and Iraqi

Freedom: the role of coping strategies, resilience, and social support. Journal of Psychiatric Research 2010: December 22, epub ahead of print. Doi:10.1016/j.psychires.2010.11.015.

Pietrzak RH, Southwick SM. Psychological resilience in OEF-OIF Veterans: Application of a novel classification approach and examination of demographic and psychosocial correlates. J Affective Dis 2011; 133: 560-568.

Pietrzak RH, Tsai J, Kirwin PD, Southwick SM. Successful aging among older veterans in the United States. Am J Geriatr Psychiatry 2014; 22: 551-563.

Polemikou A, Zartaloudi E, Polemikos N. Estinating non-belief: Translation, cultural adaptation and statistical validation of the nonreligious-nonspiritual scale (NRNSS) in a nationwide Greek sample. Archive for Psychology of Religion. 2019. DOI: 10.1177/0084672419878819. *(Scoring range unclear: given as 40-125 in paper).*

Poole JC, Dobson KS, Pusch D. Childhood adversity and adult depression; The protective role of psychological resilience. Child Abuse Negl 2017a Feb; 64:89-100. Doi: 10.106/j.ciabu.2016.12.012.

Poole JC, Dobson KS, Pusch D. Anxiety among adults with a history of childhood adversity: Psychological resilience moderates the indirect effect of emotion dysregulation. J Affective Dis 2017b; 217: 144-152.

Prabhakaran J, Pflieger J, Spera C, Harvey J, Travis W, Foster R. Air Force members health: Examining the Tenets of the Comprehensive Airmen Fitness (CAF) model in a worldwide survey of active duty members. Presentation at Military Health System Research Symposium (MHSRS), Fort Lauderdale, FL. August 16, 2012. Accessed 08/22/2014 at http://mhsrs.amedd.army.mil/ConferenceArchive/2012/presentations/Thursday/Plenary2520VI/0830%2520-%2520Travis.pdf.

Prince-Embury S. The Connor-Davidson Resilience Scale. In (Eds.) Prince-Embury S, Saklofske DH. Translating Resilience Theory for Assessment and Application with Children, Adolescents and Adults. New York. Springer. 2012; 161-166. *(Review Chapter).*

Purvis TE, Neurocritical Care and Chaplaincy Study Group, Saylor D. Burnout and resilience among neurosciences critical care staff. Neurocrit Care 2019; https://doi.org/10.1007/s12028-019-00822-4.

Qiu C, Shao D, Yao Y, et al. Self-management and psychological resilience moderate the relationships between symptoms and health-related quality of life among patients with hypertension in China. Qual Life Res 2019 May 2. Doi: 10.1007/s11136-019-02191-z.

Rahimi B, Baetz M, Bowen R, Balbuena L. Resilience, stress, and coping among Canadian medical students. Canadian Medical Education Journal 2014; 5(1): e5-e12.

Rainey EE, Petrey LB, Reynolds M, Agtarap S, Warren AM. Psychological factors predicting outcome after traumatic injury: the role of resilience. Am J Surgery 2014. http://dx.doi.org/10.1016/j.amsurg.2014.05.016.

Rajan AM, John R. Resilience and impact of children's intellectual disability on Indian parents. J Intellect Disabilities 2016 Jun 21. Pii: 1744629516654588 [Epub ahead of print].

Rakesh G, Morey RA, Zannas AS, Malik Z, Marx CE, et al. Resilience as a translational endpoint in the treatment of PTSD. Molec Psychiatry 2019. https://doi.org/10.1038/s41380-019-0383-7.

Randall W, Baldwin C, McKenzie-Mohr S, McKim E, Furlong D. Narrative and resilience: A comparative analysis of how adults story their lives. J Aging Studies 2015. http://dx.doi.org/10.1016/jaging.2015.02.010.

Rapacciuolo A, Gerrone F, Cuomo R, et al. The impact of social and cultural engagement and dieting on well-being and resilience in a group of residents in the Metropolitan area of Naples. J Aging Res 2016, dx.doi.org/10.1155/2016/4768420.

Rapport LJ, Wong CG, Hanks RA. Resilience and well-being after traumatic brain injury. Disabil Rehabil 2019 Jun 3: 1-7. Doi: 10.1080/09638288.2018.1552327. [Epub ahead of print].

Rees C, Craigie M, Slatyer S, et al. Mindful self-care and resiliency (MSCR): protocol for a pilot trial of a brief mindfulness intervention to promote occupational resilience in rural general practitioners. BMJ Open 2018; 8: e021027. Doi:10.1136/bmjopen-2017-021027.

Reid MW, Cooper DB, Lu LH, et al. Adversity and resilience are associated with outcome after mild traumatic brain injury in military service members. J Neurotrauma 2018 Mar 16. Doi: 10.1089/neu.2017.5424. [Epub ahead of print].

Reyes AT, Kearney CA, Isla K, Bryant R. Student veterans' construction and enactment of resilience: A constructivist grounded theory study. J Psychiatr Ment Health Nurs 2017. Doi: 10.1111.jpm. 12437.

Reyes AT, Serafica R, Cross CL, et al. Resilience, acculturative stress, and family norms against disclosure of mental health problems among foreign-born Filipino American women. Asian/Pacific Island Nursing J 2018; 3: 80-92.

Reyes AT, Constantino RE, Cross CL, et al. Resilience and psychological trauma among Filipino American women. Arch Psychiatric Nursing 2019; 33: 177-185.

Reynolds CF 3rd. Building resilience through psychotherapy. World Psychiatry 2019; 18(3): 289-291.

Richards KA, Lux K, Woods AM. Personal accomplishment, resilience, and perceived mattering as inhibitors of physical educators' perceptions of marginalization and isolation. J Teaching in Phys Education 2017. DOI: 10.1123/jtpe.2016-0228.

Ristevska-Dimitrovska G, Stefanovski P, Smichkoksa S, Raleva M, Dejanova B. Depression and resilience in breast cancer patients. Open Access Macedonian J Med Sci 2015a Dec 15: 3(4): 661-665. doi: 10.3889/oamjms.2015.119. Epub 2015 Nov 13.

Ristevska-Dimitrovska G, Filov I, Rajchanovska D, Stefanovski P, Dejanova B. Resilience and quality of life in breast cancer patients. Open Access Macedonian J Med Sci 2015b Dec 15: 3(4): 727-731. doi: 10.3889/oamjms.2015.128. Epub 2015 Dec 8.

Roberts ST, et al. Resilience as a protective factor against the development of PTSD symptoms following combat exposure in OIF/OEF veterans. Poster presentation, Veterans Affairs HSR&D National Meeting, 2007. http://www.hsrd.research.va.gov/meetings/2007/display_abstract.cfm?RecordID=361. Accessed 11/24/.2008.

Rodriguez-Fernandez A, Ramos-Diaz E, Ros I, Fernandez-Zabala A. Relaciones de la Resiliencia con el autoconcepto y el apoyo social percibido en una muestra de adolescents. Accion Psicologica 2015; 12: 1-14.

Rodriguez-Rey R, Alonso-Tapia J, Hermansaiz-Garrido H, Reliability and validity of the Brief Resilience Scale (BRS) Spanish version. Psychological Assessment 2015. http://dx.doi.org/10.1037/pas0000191.

Rogchanchi M, Mohamad AR, Mey SC, Momeni KM, Golmohamadyan G. The effect of integrating rational emotive behavior therapy and art theraoy on self-esteem and resilience. The Arts in Psychotherapy, doi:10.106/j.aip.2012.12.006.

Rogers D. Does a brief workshop change clinical associate students' resilience? Afr J Prim Health Care Fam Med 20116; 8(1), a1183.http://dx.doi.org/10.4102/phcfm.v8i1.1183.

Roos A, Geerts L, Koen N, Faure SC, Vythilingum B, Stein DJ. Psychosocial predictors of fetoplacental blood flow during pregnancy. Compr Psychiatry 2014; http://dx.doi.org/10.1016/j.comppsych.2014.11.011.

Rosenberg AR, Wolfe J, Bradford MC, Shaffer ML, Yi-Frazier JP, Curtis JR, Syrjala KL, Baker KS. Resilience and psychosocial outcomes in parents of children with cancer. Pediatr Blood Cancer 2013; DOI 10.1002/pbc.24854.

Rosenberg AR, Starks H, Jones B. "I know it when I see it." The complexities of measuring resilience among parents of children with cancer. Support Care Cancer 2014; April 23 [Epub ahead of print].

Rosenberg AR, Syrjala KL, Martin PJ, Flowers ME, Carpenter PA, Salit RB, Baker KS, Lee SJ. Resilience, health, quality of life among long-term survivors of hematopoietic cell transplantation. Cancer 2015. DOI: 10.1002/cncr.29651.

Rosenberg AR, Bradford MC, McCauley E, et al. Promoting resilience in adolescents and young adults with cancer: Results from the PRISM randomized controlled trial. Cancer 2018; DOI: 10.1002/cncr.31666.

Rosenberg AR, Bradford MC, Junkins CC, et al. Effect of the Promoting Resilience in Stress Management Intervention for parents of children with cancer (PRISM-P): A randomized clinical trial. JAMA Netw Open 2019 Sep 4; 2(9): e1911578. Doi: 10.1001/jamanetworkopen.2019.11578.

Rossouw J, Yadin E, Alexander D, Seedat S. Prolonged exposure therapy and supportive counselling for post-traumatic stress disorder in adolescents in a community-based sample, including experiences of stakeholders: study protocol for a comparative randomized control using task-shifting. BMC Psychiatry 2018; 18:288. https://doi.org/10.1186/s12888-018-1873-x.

Rothbaum BO, et al. A pooled analysis of gender and trauma-type effects on responsiveness to treatment of PTSD with venlafaxine extended-release or placebo. J Clin Psychiatry, published ahead of print, August 26, 2008: e1-e11(pii:ej07m03540).

Rovis D, Bizjak MC, Marchesi VV, et al. Increased risk-taking behavior and brain-derived neurotrophic factor Val66Met polymorphism correlates to decreased serum brain-derived neurotrophic factor level in heroin users. Eur Addict Res 2018; 24: 189-200.

Roy A, et al. Low resilience in suicide attempters. Arch Suic Res, 2007; 11: 65-69.

Roy A, Sarchiapone M, Carli V. Low resilience in suicide attempters: relationship to depressive symptoms. Depression and Anxiety, 2007; 24: 273-274.

Roy A, Carli V, Sarchiapone M. Resilience mitigates the suicide risk associated with childhood trauma. J Affective Dis 2011; 133: 591-594.

Rudow DL, Iacoviello BM, Charney DS. Resilience and personality traits among living liver and kidney donors. Progress in Transplantation 2014; 24: 82-90.

Saban KL, Tell D, Janusek L. Resilience in African-American women at risk for cardiovascular disease: an exploratory study. J Urban Health 2018 Nov 28. Doi: 10.1007/s11524-018-00334-0. [Epub ahead of print]

Sahu M, Gandhi S, Sharma SK, Marimuthu P. Perceived stress and resilience and their relationship with the use of mobile phone among nursing students. Invest Educ Enferm 2019 Sep; 37(3). Doi: 10.17533/udea.iee.v37n3e05.

Sanchez-Teruel D, Robles-Bello MA. Escala de Resiliencia 14 items (RS-14): propiedades psicometricas de la version en Espanol. Revista Iberoamericana de Diagnostico y Evalacion. 2015; 40: 103-113.

Samani S, et al. Effects of resilience on mental health and life satisfaction. Iranian Journal of Psychiatry and Clinical Psychology, 2007; 13: 290-295.

Sarchiapone M, Carli V, Camardese G, Cuomo C, Rizzo M. Role of childhood trauma and hostile behaviour in predisposing to suicidal attempts. Accessed: http://www.worldpsychiatricassociation.org/meetings/2005-elec-athens/sectional-symposia/ss8-sarchiapone.ppt.

Sarchiapone M, Carli V, Di Giannantonio M, Roy A. Risk factors for attempting suicide in prisoners. Am J Suicidology, 2009; 39(3): 343-350.

Sarubin N, Wolf M, Giegling I, Hilbert S, Naumann F, Gutt D, Jobst A, Sabass L, Falkai P, Rujescu D, Buhner M, Padberg F. Neuroticism and extraversion as mediators between positive/negative life events and resilience. Personality and Individ Diffs, 2015a; 82: 193-198,

Sarubin N, Gutt D, Giegling I, Buhner M, Hilbert S, Krahenmann O, Wolf M, Jobst A, Sabass L, Rujescu D, Falkai P, Padberg F. Erste Analyse der psychometrischen Eigenschaften und Struktur der deutschsprachigen 10- und 25-Item Version der Connor-Davidson Resilience Scale (CD-RISC). Gesundheitspsychologie. In press, 2015b.

Scali J, Gandubert C, Ritchie K, Soulier M, Ancelin M-L, Chaudieu I. Measuring resilience in adult women using the 10-items Connor-Davidson Resilience Scale (CD-RISC). Role of trauma exposure and anxiety disorders. PLoS ONE e39879 2012; 7: 1-7.

Scelzo A, Di Somma S, Antonini P, et al. Mixed-methods quantitiative-qualitative study of 29 nonagenarians and centenarians in rural Southern Italy: focus on positive psychological traits. Int Psychogeriatircs 2018; 30: 31-38.

Schäfer J, Wittchen H-U, Höfler M, Heinrich A, Zimmerman P, Siegel S, Schönfeld S. Is trait resilience characterized by specific patterns of attentional bias to emotional stimuli and attentional control? J Behavior Therapy and Experimental Psychiatry 2015; 48: 133-139.

Schaefer F, et al. Traumatic events and posttraumatic stress in cross-cultural mission assignments. Journal of Traumatic Stress, 2007; 20: 529-539.

Schibalski JV, Müller M, Ajdacic-Gross V, et al. Stigma-related stress, shame and avoidant coping reactions among members of the general population with elevated symptom levels. Comprehensive Psychiatry 2017 (In press).

Schure MB, Odden M, Goins RT. The association of resilience with mental and physical health among older American Indians: the Native Elder Care Study. Am Indian Alask Native Ment Health Res 2013; 20(2): 27-41.

Seib C, Porter-Steele J, Ng SK, et al. Life stress and symptoms of anxiety and depression in women after cancer: the mediating effect of stress appraisal and coping. Psychooncology 2018 Apr 6. Doi: 10.1002/pon.4728.

Sen S, Kranzler HR, Krystal JH, Speller H, Chan G, Gelernter J, Guille C. A prospective cohort study investigating factors associated with depression during medical internship. Archives of General Psychiatry 2010; 67: 557-565.

Senders A, Bourdette D, Hanes D, Yadav V, Shinto L. Perceived stress in multiple sclerosis: the potential role of mindfulness in health and well-being. J Evidence Based Complementary Altern Med 2014 Apr; 19(2): 104-111.

Seok J-H, Lee K-U, Kim W, Lee S-H, Kang E-H, Ham B-J, Yang J-C, Chae J-H. Impact of early-life stress and resilience on patients with major depressive disorder. Yonsei Medical Journal 2012; 1093-1098.

Serra L, Contador I, Fernandez-Calvo B, et al. Resilience and social support as protective factors against abuse of patients with dementia: A study on family caregivers. Int J Geriatr Psychiatry 2018. DOI: 10.1002/gps4905.

Serrano-Parra D, Garrido-Abejar M, Notario-Pacheco B, Bartolomé-Gutiérrez R, Solera-Martinez M, Martinez-Vizcaino V. Validity of the Connor-Davidson resilience scale (10-items) in a population of elderly. Enferm Clin 2013; 23: 14-21.

Setareh J, Monajemi MB, Abedini M, Tasha M, Setareh S. Comparing defense mechanisms, resilience and cognitive distortion of patients with multiple sclerosis and healthy individuals. Global J Health Science 2017; 9: 44-50.

Sexton MB, Byrd MR, von Kluge S. Measuring resilience in women experiencing infertility using the CD-RISC: examining infertility-related stress, general distress, and coping styles. J Psychiatric Research doi:10.1016/j.psychres.2009.06.007.

Sexton MB, Hamilton L, McGinnis EW, Rosenblum KL, Muzik M. The roles of resilience and childhood history: Main and moderating effects on postpartum maternal mental health and functioning. J Affective Disorders 2015; 174: 562-568.

Sharma S, Sharma SK. Psychometric analysis of Connor-Davidson Resilience scale in Indian IT industry. J Indian Acad Appl Psychology 2016; 42: 353-368.

Sharma S, Pathak A, Abbott JH, Jensen MP. Measurement properties of the Nepali version of the Connor Davidson resilience scales in individuals with chronic pain. Health and Quality of Life Outcomes 2018; 16: 56. Doi:10.1186/s12955-018-0884-0.

Sharma S, Pathak A, Jha J, Jensen MP. Socioeconomic factors, psychological factors, and function in adults with chronic musculoskeletal pain from rural Nepal. J Pain Res 2018, 11: 2385-2396.

Sharma V, Bauer B, Prasad K, Sood A, Schroeder D. Self-help intervention to decrease stress and increase mindfulness: a pilot trial. BMC Compl Altern Med 2012; 12(Suppl 1): P253.

Shi J, Chen Z, Yin F, Zhao J, Zhao X, Yao Y. Resilience as moderator of the relationship between left-behind experience and mental health of Chinese adolescents. Int J Social Psychiatry 2016. DOI: 10.1177/0020764016636910.

Shin G-S, Choi K-S, Jeong KS, et al. Psychometric properties of the 10-item Connor-Davidson resilience scale on toxic chemical-exposed workers in South Korea. Ann Occup Environmental Med 2018, 30:52. Doi.org/10.1186/s40557-018-0265-5.

Shin JC, Goo HR, Yu SJ, Kim DH, Yoon SY. Depression and quality of life in patients within the first months after spinal cord injury. Ann Rehabil Med 2012; 36: 119-125. Epub 2012 Feb 29.

Shin JC, Chae JH, Min JA, Lee CU, Hwang SI, Lee BS, Ju HI, Lee CY. Resilience as a possible predictor for psychological distress in chronic spinal cord injured patients living in the community. Ann Rehabil Med 2012; 36: 815-820.

Shin SJ. Development of a cardiovascular disease resilience scale. Journal Korean Neuropsychiatric Association 2010; 22: 161-170.

Shlomi H. The relationship between childhood family instability, secure attachment, and the sense of belonging of young adults. Dissertation, University of British Columbia, 2010. Accessed at www.web.ubc.ca/okanagan/psyo/_shared/assets/shlomithesis201017524.pdf.

Sidheek KPF, Satyanarayana VA, Sowmya HR, Chandra PS. Using the Kannada version of the Connor-Davidson Resilience Scale to assess resilience and its relationship with psychological distress among adolescent girls in Bangalore, India. Asian J Psychiatry 2017 Dec; 30: 160-167.

Sikand M, Arshad R, Beniwal RP, et al. Perceived parental style, cognitive style, and resilience in females with dissociative disorder in India. Ind J Psychiatry 2019; 61: 177-183.

Silverman AM, Molton IR, Alschuler KN, Ehde DM, Jensen MP. Resilience predicts functional outcomes in people aging with disability: A longitudinal investigation. Arch Physical Med Rehab 2015; 96: 1262-1268.
Silverstein MW, Witte TK, Lee DJ, et l. Dimensions of growth? Examining the distinctiveness of the five factors of the Posttraumatic Growth Inventory. J Traumatic Stress 2018; 31: 448-453.

Sima AP, Yu H, Marwitz JH, et al. Outcome prediction from post-injury resilience in patients with TBI. Rehabil Psychol 2019 Apr 11. Doi: 10.1037/rep0000263. [Epub ahead of print].

Simms CS, Miller LL, Trail TE, et al. 2017 U.S. Air Force Community Feedback Tool. Key Results. Report for Air Force Headquarters. RAND Corporation, Santa Monica. CA. 2019.

Simon NM, Herlands NN, Marks EH, Mancini C, Letemendi A, Li Z, Pollack MH, van Ameringen M, Stein MB. Childhood maltreatment linked to greater symptom severity and poorer quality of life and function in social anxiety disorder. Depression and Anxiety 2009; 26: 1027-1032.

Singh K, Choubisa R. Effectiveness of self-focused intervention for enhancing students' well-being. Journal of Indian Academy of Applied Psychology 2009; 35, Special Issue: 23-32.

Singh K, Yu X. Psychometric evaluation of the Connor-Davidson Resilience Scale (CD-RISC) in a sample of Indian students. J Psychology 2010; 1: 23-30.

Singh K, Junnarkar M, Mitra S. Validation of Hindi translated scales on grit, resilience and wellbeing. J Indian Acad Applied Psychology 2018; 44: 89-98.

Singh S, Deshmukh P, Ungratwar A, Subramanyam AA, Kamath R. Does resilience affect illness perception and well-being in the elderly? J Geriatric Mental Health 2015. DOI: 10.4103/2348-9995.152429.

Skrzypiec G, Askell-Williams H, Zhao X, et al. Predictors of Mainland Chinese students' wellbeing. Psychol Schs 2018; 55: 539-554.

Slatyer S, Craigie M, Heritage B, Davis S, Rees C. Evaluating the effectiveness of a brief Mindful Self-Care and Resiliency (MSCR) intervention for nurses: a wait-list controlled trial. Mindfulness 2017. Doi: 10.1007/s12671-017-0795-x.

Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The Brief Resilience Scale: assessing the ability to bounce back. Int J Behav Med 2008; 15: 194-200.

Smith PR. Resilience: resistance factor for depressive symptoms. J Psychiatr and Mental Health Nursing 2009, 16: 829-837.

Soczynska JK, Kennedy SH, Alsuwaidan M, et al. Exploring the role of inflammatory cytokines in the pathophysiology, cognitive dysfunction and treatment of bipolar disorder: integrative evidence provided by a proof-of-concept study with adjunctive minocycline. Bipolar disorders 2017; 19: 198-213.

Solano JP, Neto FL. Cross-cultural adaptation and validation of Brazilian Portuguese versions of the Dispositional Resilience Scale and Connor-Davidson Resilience Scale. Poster [PO-09] at WPA Meeting, Section on Epidemiology and Public Health, Sao Paulo. March 14-17, 2012.

Solano JP, da Silva AG, Soares IA, Ashmawi HA, Vieira JE. Resilience and hope during advanced disease: a pilot study with metastatic colorectal cancer patients. BMC Palliat Care 2016a Aug 2; 2: 15(1): 70. doi: 10.1186/s12904-016-0139-y.

Solano JP, Bracher ES, Faisal-Cury A, et al. Factor structure and psychometric properties of the Connor-Davidson Resilience Scale among Brazilian adult patients. Sao Paolo Med J 2016b May 13. pii: S1516-31802016005003104. [Epub ahead of print].

Solati K. The efficacy of mindfulness-based cognitive therapy on resilience among the wives of patients with schizophrenia. J Clin Diag Res 2017 Apr; 11(4): VC01-VC03. Doi: 10.7860/JCDR/2017/23101.9514. Epub 2017 Apr 1.

Sood A, Prasad K, Schroeder D, Varkey P. Stress management and resilience training among department of medicine faculty: a pilot randomized clinical trial. J Gen Intern Med 2011. DOI: 10.1007/s11606-011-1640-x.

Sood A, Sharma V, Schroeder DR, Gorman B. Stress management and resiliency training (SMART) program among Department of Radiology faculty: a pilot randomized clinical trial. Explore (NY) 2014; 10: 358-363.

Sorenson T, la Cour P, Danbolt LJ, et al. The Sources of Meaning and Meaning in Life Questionnaire in the Norwegian context: relations to mental health, quality of life, and self-efficacy. Int J Psychol Religion 2018. https://doi.org/10.1080/10508619.2018.1547614.

Spencer L, Schmidt-Hantke J, Allen K, et l. A web-based intervention for carers of individuals with anorexia nervosa: trial protocol…… Internet Interv 2018; 22: 76-85.

Spies G, Seedat S. Depresion and resilience in women with HIV and early life stress: does trauma play a mediating role? A cross-sectional study. BMJ Open, 2014; 4: e004200. Doi:10.1136/bmjopen-2013-004200.

Ssenyonga J, Owens V, Olema DK. Posttraumatic growth, resilience and posttraumatic stress disorder (PTSD) among refugees. Proc Soc Behav Sci 2013; 82: 144-148.

Stein DJ. The psychobiology of resilience. CNS Spectrums 2009; 14 (Suppl 3): 41-47. *(Review article).*

Stein MB, Campbell-Sills L, Gelernter J. Genetic variation in 5HTTLPR is associated with emotional resilience. Am J Med Genetics B Neuropsychiatr Genet 2009; 150B (7): 900-906.

Steinhardt MA, Dolbier C. Evaluation of a resilience intervention to enhance coping strategies and protective factors and decrease symptomatology. J American College Health 2008 (Jan/Feb); 56: 445-453.

Steinhardt MA, Mamerow MM, Brown SA, Jolly CA. A resilience intervention in African American adults with type 2 diabetes. The Diabetic Educator 2009, February 9; doi:10.1177/0145721708329698.

Stephens TM. Increasing resilience in adolescent nursing students. Ph.D. dissertation, University of Tennessee, 2012. http://trace.tennesseee.edu/utk_graddiss/1351.

Stephenson C. Economic self-sufficiency and resiliency among US Virgin Islands TANF leavers. Dissertation, Capella University. Accessed November 15, 2012. http://gradworks.umi.com/3523883.pdf.

Stevens G, Jones A, Smith G, Nelson J, Agho K, Taylor M, Raphael B. Determinants of paramedic response readiness for CBRNE threats. Biosecurity and Bioterroriam Biodefense Strategy, Practice and Science. 2010; 8: 193-202.

Stevens G, Agho K, Taylor M, Jones AL, Barr M, Raphael B. Perceived coping & concern predict terrorism preparedness in Australia. BMC Public Health 2012; 12: 1-11.

Stevens GJ, Dunsmore JC, Agho KE, Taylor MR, Jones AL, van Ritten JJ, Raphael B. Long-term wellbeing of people affected by the 2002 Bali bombing. Medical Journal of Australia 2013; 16: 273-277.

Stoner CR, Orrell M, Long M, Csipke E, Spector A. The development and preliminary psychometric properties of two positive psychology outcome measures for people with dementia: the PPOM and the EID-Q. BMC Geriatrics 2017: 17:72. Doi: 10.1186/s12877-017-0468-6.

Storey J, Travis J. Resilience, selective optimization and compensation (SOC), and well-being in community dwelling older adults. Australasian Journal on Aging, 2008; 27 (Supplement 1): A56-A57.

Suarez EB. Two decades later: The resilience and post-traumatic responses if Indigenous Quechua girls and adolescents in the aftermath of the Peruvian armed conflict. Child Abuse & Neglect 2012, http://dx.doi.org/10.1016/j.chiabu.2012.09.011.

Suh WW, Cho SH, Yoo JY, et al. Relationship between psychological correlates and empathy in medical students: A cross-sectional study. Psychiatry Investig 2019; 16: 766-772.

Sullivan CE, King AR, Holdiness J, et al. Reducing compassion fatigue in inpatient pediatric oncology nurses. Oncol Nurse Forum 2019; 46: 338-347.

Surawera IK, Hoe VCW, Kelsall HL, Urquhart DM, Sim MR. Physical and psychosocial factors associated with wrist or hand pain among Australian hospital-based nurses. Injury Prevention 2013; 19: 13-18.

Sutherland JA, Cook L, Stetina P, Hernandez C. Women in substance abuse recovery. Measures of resilience and self-differentiation. Western J Nursing Res 2009; 31 (7): 905-922.

Tabakakis C, McAllister M, Bradshaw J, Quyen G. Psychological resilience in New Zealand registered nurses: The role of workplace characteristics. J Nurs Manag 2019 DOI: 10.1111/jonm.12815.

Tadayon M, Dabirizadeh S, Zarea K, Behroozi N, et al. Investigating the relationship between psychological hardiness and resilience with depression in women with cancer. Gulf J Oncolog 2018; 1: 23-30.

Tajanlangit ALN. Demographics, resilience, ethical climate, and burnout among Filipino mental health nurses. Unpublished abstract. 2014.

Tan KK, Chan SW-C, Wang W, Vehviläinen-Julkunen K. A salutogenic program to enhance sense of coherence and quality of life for older people in the community: A feasibility randomized controlled trial and process evaluation. Patient Education and Counseling 2015. http://dx.doi.org/10.1016/j.pec.2015.08.003.

Tan WS, Beatty L, Kemp E, Koczwara B. What contributes to resilience in cancer patients? A principal component analysis of the Connor-Davidson Resilience Scale. Asia Pac J Clin Oncol 2019 Feb 11. Doi: 10.1111/ajco.13128 [Epub ahead of print]

Tan Y, Liu Y, Wu L. Screening results correlating to personality disorder traits in a new employee population of People’s Republic of China. Neuropsychiatr Dis and Treatment 2016; 12: 2553-2560.

Taylor MK, Rolo C, Stump J, et al. Psychological strategies during military training are linked to resilience in US Navy explosive ordnance disposal operators. J Spec Oper Med 2019 Spring; 19: 61-65.

Taylor ZE, Kittrell N, Nair N, et al. Developmental antecedents of adolescent optimism in rural midwestern U.S. Latinx youth. Community Psychology 2019. DOI: 10.1002/jcop.22267.

Terrill AL, Molton IR, Ehde DM, et al. Resilience, age, and perceived symptoms in persons with long-term physical disabilities. J Health Psychology 2016 May; 21(5): 640-694. doi: 10.1177/1359105314532973. Epub 2014 May 8.

Thabet AA, Tawahina AA, El Sarraj E, Vostanis P. Evaluation of a community intervention for women victims of domestic violence in the Gaza strip. Int J Peace and Development Studies 2011; 2: 88-95.

Thomas ML, Bangen KJ, Palmer BW, et al. A new scale for assessing wisdom based on common domains and a neurobiological model: the San Diego Wisdom Scale (SD-WISE). J Psychiat Res 2017. http://dx.doi.org/10.1016/j.psychires.2017.09.005.

Thompson G, Wrath A, Trinder K, Adams GC. The roles of attachment and resilience in perceived stress in medical students. Can Med Educ J 2018 Nov 12; 9(4): e69-e77.

Tian X, Liu C, Zou G, Li G, Kong L, Li P. Positive resources for combating job burnout among Chinese telephone operators: Resilience and psychological empowerment. Psychiatry Research 2015; 228: 411-415.

Tibbett JA, Field-Fote EC, Thomas CK, Widerstrom-Noga EG. Spasticity and pain after spinal cord injury: Impact on daily life and the influence of psychological factors. PM & R 2019; https://dx.doi.org/10.1002/pmrj.12218.

Tolentino M, Suba E. The use of resilience-based group intervention program for victims of bullying. Int J Res Stud Psychology 2018. DOI: 10.5861/ijrsp.2018.3004.

Toma G, Guetterman TC, Yaqub T, et al. A systematic approach for accurate translation of instruments: Experience with translating the Connor-Davidson Resilience Scale into Arabic. Methodological Innovations 2017; 10. DOI: 10.1177/2059799117741406.

Toprak D, Nay L, McNamara S, et al. Resilience in adolescents and young adults with cystic fibrosis: A pilot feasibility study of the promoting resilience in stress management intervention. Pediatr Pulmonol 2019 Dec 3. Doi: 10.1002/ppul.24574. [Epub ahead of print].

Torgalsbøen A-K, Rund BR. Maintenance of recovery from schizophrenia at 20-year follow-up: what happened? Psychiatry 2010: 73: 70-81.

Torgalsbøen A-K. Sustaining full recovery in schizophrenia after 15 years: does resilience matter? Clin Schizophr Ralet Psychoses, 2012; 5: 193-200.

Torgalsbøen A-K. Fu S, Czajkowski N. Resilience trajectories to full recovery in first-episode schizophrenia. Eur Psychiatry 2018 Aug 52:54-60. Doi: 10.1016/j.europsy.2018.04.007. Epub 2018 May 3.

Tosone C. Shared traumatic stress and the post 9/11 quality of professional practice. Poster presented at Society of Social Work and Research Annual Meeting. New Orleans, Jan 16, 2009. Accessed at http://sswr.confex.com/sswr/2009/webprogram/Paper11246.html.

Tosone C, McTighe JP, Bauwens J, Naturale A. Shared traumatic stress and the long-term impact of 9/11 on Manhattan clinicians. J Traumatic Stress 2011; 24: 546-552.

Tourunen AJ, Siltanen S, Saajanaho M, et al. Psychometric properties of the 10-item Connor-Davidson resilience scale among Finnish older adults. Aging & Mental Health 2019. DOI: 10.1080/13607863.2019.1683812. *(Note: Translation was not approved by scale authors).*

Tran U, Glück TM, Lueger-Schuster B. Influence of personal and environmental factors on mental health in a sample of Austrian survivors of World War II with regard to PTSD: is it resilience? BMC Psychiatry 2013; 13: 47. http://www.biomedcentral.com/1471-244X/13/47.

Trip H, Tabakakis K, Maskill V, et al. Psychological health and resilience: the impact of significant earthquake events on tertiary level professional students: A cross-sectional study. Contemporary Nurse 2018. http://dpi.org/10.1080/10376178.2018.1503549.

Trombka M, Demarzo M, Bacas DC, et al. Study protocol of a multicenter randomized controlled trials of mindfulness training to reduce burnout and promote quality of life in police officers: the POLICE study. BMC Psychiatry 2018 18: 151. https://doi.org/10.1186/s12888-018-1726-7.

Tsai J, Harpaz-Rotem I, Pietrzak RH, Southwick SM. The role of coping, resilience, and social support in mediating the relation between PTSD and social functioning in Veterans returning from Iraq and Afghanistan. Psychiatry, 2012: 75: 135-145.

Tseng HM, Shih WM, Shen YC, et al. Work stress, resilience, and professional quality of life among nurses caring for mass burn casualty patients after Formosa Color Dust Explosion. J Burn Care Res 2017. Doi: 10.1093/jbcr/irx053.

Tsigkaropoulou E, Douzenis A, Tsitas N, et al. Greek version of the Connor-Davidson Resilience Scale: Psychometric properties in a sample of 546 subjects. In Vivo 2018; 32: 1629-1634.

Tsuno K, Oshima K, Kubota K, Kawakami N. Personal resilience and post-traumatic symptoms of local government employees six months after the 2011 magnitude 9.0 East Japan Earthquake. Sangyo Eiseigaku Zasshi 2014 Sept epub ahead of print.

Tu PC, Yeh DC, Hsieh HC. Positive psychological changes after breast cancer diagnosis and treatment: The role of trait resilience and coping styles. J Psychosoc Oncol 2019 Oct 18: 1-15. DOI: 10.1080/07347332.2019.1649337 [Epub ahead of print].

Turner SB. Resilience of nurses in the face of disaster. Disaster Med Public Health Prep 2015 Jun 5: 1-4 [Epub ahead of print].

Um Y-H, Huh H-J, Kim S-J, Chae J-H. Possible cultural effects on the increments of somatic symptoms in subjectively resilient depressed patients. Asia-Pacific Psychiatry 2014; 1-6. DOI:10.1111/appy.12143.

Vahia IV, Meeks TW, Thompson WK, Depp CA, Zisook S, Allison M, Judd LL, Jeste DV. Subthreshold depression and successful aging in older women. Am J Ger Psychiatry 2010; 18: 212-220.

Van Breda K, Collins M, Stein DJ, Ruach L. The COMT val^{158}met polymorphism in ultra-endurance athletes. Physiology & Behavior. 2015. http://dx.doi.org/10.1016/jphysbeh.2015.07.039.

Vaishnavi S, et al. An abbreviated version of the Connor-Davidson Resilience Scale (CD-RISC), the CD-RISC 2: psychometric properties and application in psychopharmacological trials. Psychiatry Research, 2007; 152: 293-297.

Vaughan E, Koczwara B, Kemp E, et al. Exploring emotion regulation as a mediator of the relationship between resilience and distress in cancer. Psychooncology 2019 May 14. doi: 10.1002/pon.5107. [Epub ahead of print]

Vetter S, Dulaev I, Mueller M, Henley RR, Gallo WT, Kanukova Z. Impact of resilience enhancing programs on youth surviving the Beslan school siege. Child and Adolescent Psychiatry and Mental Health, 2010; 4: 11. Doi:10.1186/1753-2000-4-11.

Viggers LC, Caltabiano ML. Factors affecting the psychological functioning of Australian adults with chronic pain. Nursing Health Science 2012; 14: 508-513.

Vinaccia S, Quiceno JM. Calidad de vida relacionada con la salud y factores psicologicos: un studio desde le enfermedad pulmonary obstructive cronica – EPOC. (Health-related quality of life and psychological factors: a study from chronic obstructive pulmonary disease – COPD). Terapia Psicologica 2011; 29: 65-75.

Vinaccia S, Quiceno JM. Remor E. Resilience, illness perception of disease, beliefs and spiritual-religious coping in relation to the health-related quality of life in chronic Colombian patients. Anales de Psicologia 2012; 28: 366-377.

Vlasova RM, Siddarth P, Krause B, et al. Resilience and white matter integrity in geriatric depression. Am J Geriatr Psychiatry 2018 Apr 23. pii: S1064-7481(18)30298-7. doi: 10.1016/j.jagp. 2018.04.004.

Vongsirimas N, Thanoi W, Klainin-Yobas P. Evaluating psychometric properties of the Connor-Davidson Resilience Scale (10-item CD-RISC) among university students in Thailand. J Nursing Sci 2017; 35: 25-35.

Walker FR, Thomson A, Pfingst K, et al. Habituation of the electrodermal response – a biological correlate of resilience? PLoS One Jan 25; 14(1): e0210078. Doi: 10.1371/journal.pone.0210078.

Walsh DMJ, Morrison TG, Conway RJ, et al. A model to predict psychological- and health-related adjustment in men with prostate cancer: the role of post traumatic growth, physical post traumatic growth, resilience and mindfulness. Front Psychology 2018; 9: 136. Doi: 10.3389/psyg. 2018.00136. ***[Items scored 1-5 in publication, have been corrected in the text of this manual]***

Wamser-Nanney R, Howell KH, Schwartz LE, Hasselle AJ. The moderating role of trauma type on the relationship between event centrality of the traumatic experience and mental health outcomes. Psychol Trauma: Theory, Research, Practice and Policy 2017; dx.doi.org/10.1037/tra0000344. ***[Scores reported in paper using scale of 1-5. Corrected values using 0-4 are given in text].***

Wang L, Shi Z, Zhang Y, Zhang Z. Psychometric properties of the 10-item Connor-Davidson Resilience Scale in Chinese earthquake victims. Psychiatry and Clinical Neurosciences 2010; 64: 499-504.

Wang YW, Liu GZ, Zhou XT, Sheng PJ, Cui FF, Shi T. Mediating effect of mental elasticity on occupational stress and depression in female nurses. Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za 2017; 35: 436-439.

Wang Y, Zhao Y, Xie S, et al. Resilience mediates the relationship between social support and quality of life in patients with primary glaucoma. Front Psychiatry 2019 Jan 31; 10:22. Doi: 10.3389/psyt.2019.00022.

Warren AM, Jones AL, Shafi S, Roden-Foreman K, Bennett MM, Foreman ML. Does caring for trauma patients lead to psychological stress in surgeons? J Trauma Acute Care 2013; 75: 179-184.

Wei J, Shi J, Zhang M, et al. Childhood trauma and its correlation with resilience among primary and middle school students in Wuhan City in 2015. Wei Sheng Yan Jiu 2019 Sep; 48(5): 717-727.

Weidlich CP, Ugarriza DN. A pilot study examining the impact of care provider support program on resiliency, coping, and compassion fatigue in military health care providers. Military Medicine 2015; 180, 3: 290. DOI: 10.7205/MILMED-D-14-00216.

Werneburg BL, Jenkins SM, Friend JL, et al. Improving resiliency in healthcare employees. Am J Health Behav 2018; 42: 39-50.

West C, Buettner P, Stewart L, Foster K, Usher K. Resilience in families with a member with chronic pain: a mixed methods study. J Clinical Nursing 2012; 21: 3532-3545, doi: 10.1111/j.1365-2702.2012.04271.x.

West C, Buettner P, Foster K, Usher K. Psychometric testing of the Family Impact of Pain Scale using a sample of families in Australia. Nurse Practitioner 2012; 2: 6-12.

Wetherall K, Cleare S, Eschle S, et al. From ideation to action: Differentiating between those who think about suicide and those who attempt suicide in a national study of young adults. J Affective Disorders 2018; 241: 475-483.

White B, Driver S, Warren AM. Resilience and indicators of adjustment during rehabilitation from a spinal injury. Rehabilitation Psychology 2010; 54: 23-32. Psychol Med. 2016 Sep;46(12):2571-82. doi: 10.1017/S0033291716000532. Epub 2016 Jun 28.

Wild J, Smith KV, Thompson E, et al. A prospective study of pre-trauma risk factors for post-traumatic stress disorder and depression. Psychol Med 2016; xxx

Wilks S. Intrinsic spirituality among Alzheimer’s caregivers: a pathway to resiliency. Advances in Social Work 2006; 7: 67-89.

Wilks SE, Vonk ME. Private prayer among Alzheimer’s caregivers: mediating burden and resiliency. Journal of Gerontological Social Work 2008; 50: 113-130.

Williams B, Jalilianhasanpour R, Matin N, et al. Individual differences in corticolimbic structural profiles linked to insecure attachment and coping styles in motor functional neurological disorders. J Psychiatr Res 2018; 102: 230-237.

Windle G, Bennett KM, Noyes J. A methodological review of resilience measurement scales. Health and Quality of Life Outcomes. 2011;9-8:1-18. *(Review article).*

Wingo AP, Wrenn G, Pelletier T, Gutman AR, Bradley B, Ressler KJ. Moderating effects of resilience on depression in individuals with a history of childhood abuse or trauma exposure. J Affective Disorders 2010; 126: 411-414.

Wingo AP, Ressler KJ, Bradley B. Resilience characteristics mitigate tendency for harmful alcohol and illicit drug use in adults with a history of childhood abuse: A cross-sectional study of 2024 inner-city men and women. J Psychiatric Research 2014; 51: 93-99.

Wingo AP, Briscione M, Norrholm SD et al. Psychological resilience is associated with more intact social functioning in veterans with post-traumatic stress disorder and depression. Psychiatry Res 2017 Jan 12; 249-211.

Wojahn RD, Bogunovic L, Brophy RH, et al. Opioid consumption after knee arthroscopy. J Bone Joint Surgery 2018; 100: 1629-1636.

Wolf EJ, Miller MW, Sullivan DR, et al. A classical twin study of PTSD symptoms and resilience: Evidence for a single spectrum of vulnerability to traumatic stress. Depress Anxiety 2018 Feb; 35(2): 132-139.

Wong S, Yang C, Zhao Y, et al. Sex-linked neurofunctional basis of psychological resilience in late adolescence: a resting-state functional magnetic resonance imaging study. Eur Child Adolesc Psychiatry 2019. https://doi.org/10.1007/s00787-019-01421-6.

Wooten NR. Deployment risk among GWOT ARNG women veterans: posttraumatic stress and resilient outcomes. Presentation at Society for Social Work and Research 14th Annual conference: Social Work Research:

A World of Possibilities. January 16, 2010. Accessed at http://sswr.confex.com/sswr/2010/webprogram/Paper12255.html.

Wootton AR, Legnitto DA, Gruber VA, et al. Telehealth and texting intervention to improve HIV care engagement, mental health and substance use outcomes in youth living with HIV: a pilot feasibility and acceptability study protocol. BMJ Open 2019;9:e028522. Doi: 10.1136/bmjopen-2018-028522.

Wrenn GL, Wingo AP, Moore R, Pelletier T, Gutman AR, Bradley B, Ressler KJ. The effect of resilience on posttraumatic stress disorder in trauma-exposed inner-city primary care patients. J Nat Med Assoca 2011; 103: 560-566.

Wu K, Zhang Y, Liu Z, Zhou P, Wei C. Coexistence and different determinants of posttraumatic stress disorder and posttraumatic growth among Chinese survivors after earthquake: role of resilience and rumination. Frontiers in Psychology 2015. Doi: 10.3389/fpsyg.2015.01043. ***[Results in paper give mean of 34.8, based on 1-5 scoring algorithm. Correct means given in manual]***.

Wu L, Tan Y, Liu Y. Factor structure and psychometric evaluation of the Connor-Davidson resilience scale in a new employee population of China. BMC Psychiatry 2017 Feb 2;17(1):49. doi: 10.1186/s12888-017-1219-0.

Wu MS, Yan X, Zhou C, Chen Y, Li J, Zhu Z, Shen X, Han B. General belief in a just world and resilience: evidence from a collectivistic culture. European Journal of Personality 2011; 25: 431-442.

Wu Z, Liu Y, Li X, Li X. Resilience and associated factors among Mainland Chinese women newly diagnosed with breast cancer. PLOS ONE 2016. DOI: 10.1371/journal.pone.0167976.

Xie Y, Peng L, Zuo X, Li M. The psychometric evaluation of the Connor-Davidson Resilience Scale using a Chinese military sample. PLOS ONE 2016. DOI: 10.1871/journal.pone.0148843. February 8, 2016.

Xing C, Sun J-M. The role of psychological resilience and positive affect in risky decision-making. Int J Psychology 2012; http://dx.doi.org/10.1080/00207594.2012.729840.

Yang C, Xia M, Han M, Liang Y. Social support and resilience as mediators between stress and life satisfaction among people with substance use disorder in China. Front Psychiatry 2018 DOI: 10.3389/fpsyt.2018.00436.

Yang C, Zhou Y, Cao Q, et al. The relationship between self-control and self-efficacy among patients with substance abuse disorders: Resilience and self-esteem as mediators. Fron Psychiatry 2019 Jun 12; 10:388. Doi: 10.3389/fpsyct.2019.00388.

Yang G, Liu J, Liu L, Ding S, Xie J. Burnout and resilience among transplant nurses in 22 hospitals in China. Transplant Proc 2018 Apr 18. Pii: S0041-1345(18)30603-1. Doi: 10.1016/j.transproceed.2018.04.033.

Ye ZJ, Qiu HZ, Li PF, Chen P, et al. Validation and application of the Chinese version of the 10-item Connor-Davidson Resilience Scale (CD-RISC-10) among parents of children with cancer diagnosis. Eur J Oncol Nurs 2017; 27: 36-44.

Yi-Frazier JP, Fladeboe K, Klein V, et al. Promoting Resilience In Stress Management for Parents (PRISM-P): An intervention for caregivers of youth with serious illness. Fam Syst Health 2017; 35: 341-351.

Ying L, Wu X, Lin C, Jiang L. Traumatic severity and trait resilience as predictors of posttraumatic stress disorder and depressive symptoms among adolescent survivors of the Wenchuan earthquake. PLoS ONE 2014; 9(2): e89401. Doi:10.1371/journal.pone.0089401.

Yoon S, Howell K, Dillard R, et al. Resilience following child maltreatment: Definitional considerations and developmental variations. Trauma, Violence & Abuse 2019. DOI: 10.1177/1524838019869094.

You S, Park M. Resilience protected against suicidal behavior for men but not women in a community sample of older adults in Korea. Front Psychol 2017 Mar 15; 8: 401. Doi: 10.3389/fpsyg.2017.00401.

Young-McCaughan, Peterson AL, Bingham MO. The role of sleep in the health and resiliency of military personnel. NATO/OTAN. RTO-MP-HFM-205; 26/1-26/9. *(review article without original data).*

Young-Wolff KC, Alabaster A, McCaw B, et al. Adverse childhood experiences and mental and behavioral health conditions during pregnancy: the role of resilience. J Women's Health 2018. DOI: 10.1089/jwh. 2018.7018.

Youssef NA, Green KT, Dedert EA, Hertzberg JS, Calhoun PS, Dennis MF, Mid-Atlantic Research, Education and Clinical Center Workgroup, and Beckham JC. Exploration of the influence of childhood trauma, combat exposure, and the resilience construct on depression and suicidal ideation among U.S. Iraq/Afghanistan Era military personnel and veterans. Archives Suicide Research 2013a; 17: 106-122.

Youssef NA, Green KT, Beckham JC, Elbogen EB. A 3-year longitudinal study examining the effect of resilience on suicidality in veterans. Annals Clin Psychiatry 2013b; 25: 59-66.

Yu C. Resilience of the parents of children with autism and related disorders. Nanjing Normal University Graduate Degree Thesis Enquiry system. Unpublished, Abstract Accessed on the web 2/24/2008.

Yu NX, Lam TH, Liu IKF, Stewart SM. Mediation of short and longer term effects of an intervention program to enhance resilience in immigrants from mainland China to Hong Kong. Frontiers in Psychology 2015. DOI: 10.3389/fpsyg.2015.01769.

Yu X, Zhang J. Factor analysis and psychometric evaluation of the Connor-Davidson Resilience Scale (CD-RISC) with Chinese people. Social Behavioral Personality, 2007a; 35: 19-30.

Yu X, Zhang J. A comparison between the Chinese Version of Ego-Resiliency Scale and Connor-Davidson Resilience Scale. Psychological Science, 2007b; 30: 5.

Yu XN, Lau JTF, Mak WWS, Cheng YM, Lv YH, Zhang JX. Risk and protective factors in association with mental health problems among people living with HIV who were former plasma/blood donors in rural China. AIDS Care 2009; 21: 645-654.

Yu X, Lau JTF, Mak WWS, Zhang J, Lui WWS, Zhang J. Factor structure and psychometric properties of the Connor-Davidson Resilience Scale among Chinese adolescents. Comprehensive Psychiatry 2011; 52: 218-224.

Yu X, Stewart SM, Liu IKF, Lam TH. Resilience and depressive symptoms in mainland Chinese immigrants to Hong Kong. Social Psychiatry Psychiatric Epidemiology 2013a; DOI: 10.1007/s00127-013-0733-8.

Yu X, Lau JTF, Mak WWS, Cheng Y, Lu Y, Zhang J. A pilot theory-based intervention to improve resilience, psycho-social well-being and quality of life among people living with HIV in rural China. Journal Sex and Marital Therapy 2013b; DOI: 10.1080/0092623X.2012.668512.

Yu X, Stewart SM, Chui JPL, Ho JLY, Li ACH, Lam TH. A pilot randomized controlled trial to decrease adaptation difficulties in Chinese new immigrants to Hong Kong. Behavior Therapy 2014; 45: 137-152.

Yun C, Oh S, Shin YH. AGSM proficiency and depression are associated with success of High-G training in trainee pilots. Aerospace Med and Human Perfprmance 2019; 90: 613-617.

Yusof RAABM, Campbell MA. The applicability of Bowen's family theory to the Malay population. QUT Digital Repository. Accessed at http://eprints.qut.edu.au/.

Zakiei A, Alikhani F, Farnia V, Khkian Z, Shakeri J, Golshani S. Attachment style and resiliency in patients with obsessive-compulsive disorder. Korean J Family Medicine 2017; 38: 34-39.

Zarpour S, Besharat MA. Comparison of personality characteristics of individuals with irritable bowel syndrome and healthy individuals. Proc Soc Behav Sci 2011; 20: 84-88.

Zarzaur BL, Bell TM, Zanskas SA. Resiliency and quality of life trajectories after injury. J Trauma Acute Care Surg 2017 Feb 23. Doi: 10.1097/TA.0000000000001415. [Epub ahead of print].

Zhang J, Yu NX, Zhang J, Zhou M. Sense of community and life satisfaction in Chinese older adults: moderating roles of personal and partner resilience. J Community Psychol 2016. DOI: 10.1002/jcop.21878.

Zhang W, Wang AN, Yao SY, et al. Latent profiles of posttraumatic growth and their relation to differences in resilience among only-child-lost people in China. PLoS One. 2016 Dec 22;11(12):e0167398. Doi: 10.1371/journal.pone.0167398.

Zhao D, Liu C, Feng X, Hou F, Xu X, Li P. Menopausal symptoms in different substages of perimenopause and their relationships with social support and resilience. Menopause 2018 Sep 24. DOI: 10.1097/GME.0000000000001208. [Epub ahead of print].

Zhao F-F, Suhonen R, Katajisto J, et al. Association between diabetes-ralted self-care activities and positive health: a cross-sectional study. BMJ Open 2019;9:e023878. Doio: 10.1136/bmjopen-2018-023878.

Zheng Y, Shen K. Resilience significantly contributes to exceptional longevity. Current Gerontology and Geriatrics Research 2010; doi:10.1155/2010/525693.

Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi 2017 Jun 20; 35(6): 436-439. Doi: 10.3760/cma.j.issn.1001-9391.2017.06.009. In Chinese.

Zhong X, Wu D, Nie X, et al. Parenting style, resilience, and mental health of community-dwelling elderly adults in China. BMC Geriatrics 2016 Jul 8; 16(1): 135. doi: 10.1186/s12877-016-0308-0.

Zhou K, Li J, Li X. Effects of cyclic adjustment training delivered via a mobile device on psychological resilience, depression, and anxiety in Chinese post-surgical breast cancer patients. Breast Cancer Res Treat 2019 Jul 24. Doi: 10.1007/s10549-019-05368-9. [Epub ahead of print]

Ziaian T, de Anstiss H, Antoniou G, Baghurst P, Sawyer M. Resilience and its association with depression, emotional and behavioural problems, and mental health service utilization among refugee adolescents living in South Australia. Int J Population Res 2012; doi:10.1155/2012/485956.ó

Zurita-Ortega F, Muros-Molina J-J, Rodriquez-Fernandez S, et al. Associations of motivation, self-concept and resilience with the competitive level of Chilean judokas. Archives of Budo: Science of Martial Arts 2016; 12: 201-209.

Zurita-Ortega F, Fernandez SR, Marta OE, Sanchez MC. Analysis of resilience, anxiety and sports injuries in soccer by competition level. Cultura, Ciencia y Deporte 2017; 12: 136-142.

Zurita-Ortega F, Chacón-Cuberas R, Castro-Sanchez M, et al. Effect of an intervention program based on active video games and motor games on health indicators in university students: A pilot study. Int J Environ Res Public Health 2018 June 25; 15 (7). Pii: E1329. Doi: 10.3390/ijerph15071329.

Zurita-Ortega F, Chacon-Cuberos R, Cofre-Bolados C, et al. Relationship of resilience, anxiety and injuries in footballers: structural equations analysis. PLoS One. Nov 26; 13(11):e0207860. Doi: 10.1371/journal.pone.0207860.